Algebra II Lesson #1 Unit 6 Class Worksheet #1 For Worksheet #1

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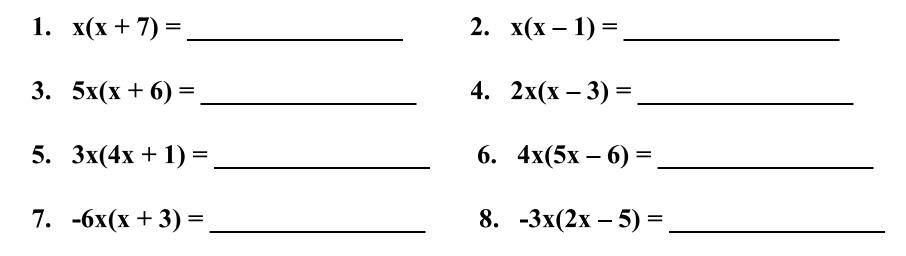
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Perform the indicated operations.



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 1. x(x + 7) = 2. x(x - 1) =

 3. 5x(x + 6) = 4. 2x(x - 3) =

 5. 3x(4x + 1) = 6. 4x(5x - 6) =

 7. -6x(x + 3) = 8. -3x(2x - 5) =

Consider the problem : Multiply 2 · 3.

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Consider the problem : Multiply 2.3. Of course, the answer is 6.

Perform the indicated operations.

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Consider the problem : Multiply 2 · 3. Of course, the answer is 6. Now consider the problem : Factor 6.

Perform the indicated operations.

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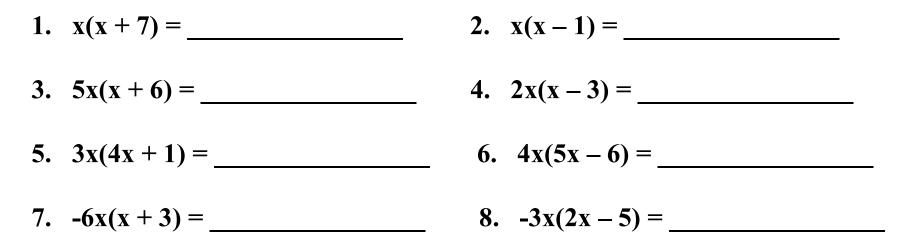
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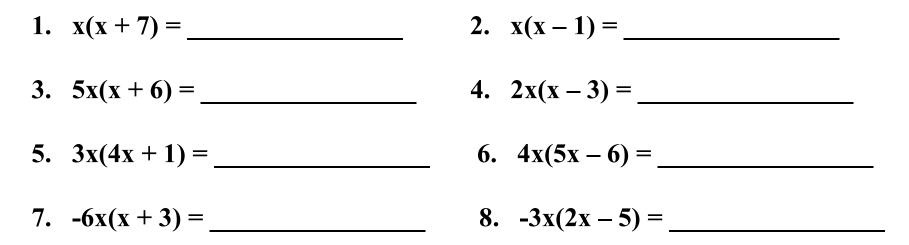
Consider the problem : Multiply $2 \cdot 3$. Of course, the answer is 6. Now consider the problem : Factor 6. This time the answer is $2 \cdot 3$.

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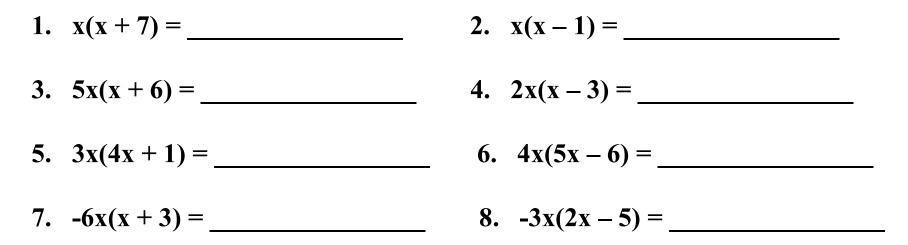
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Consider the problem: Factor 91.

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Consider the problem: Factor 91. The answer is 7 · 13.

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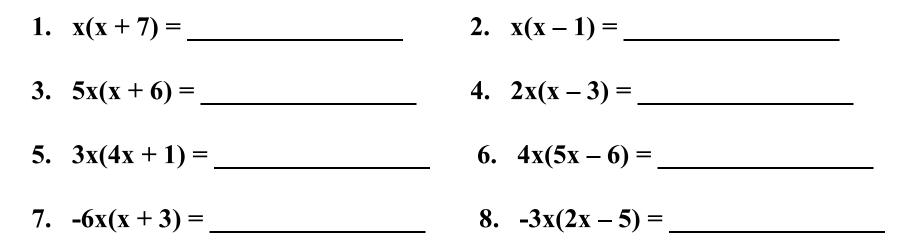
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In algebra, each factoring pattern depends on a related multiplication pattern.

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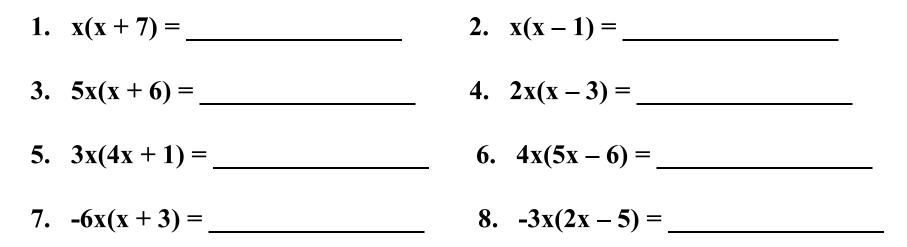


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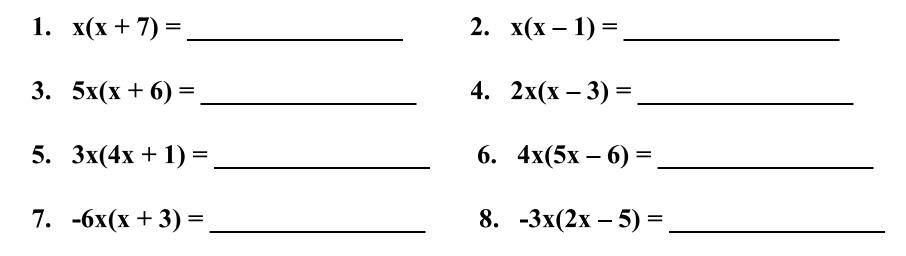


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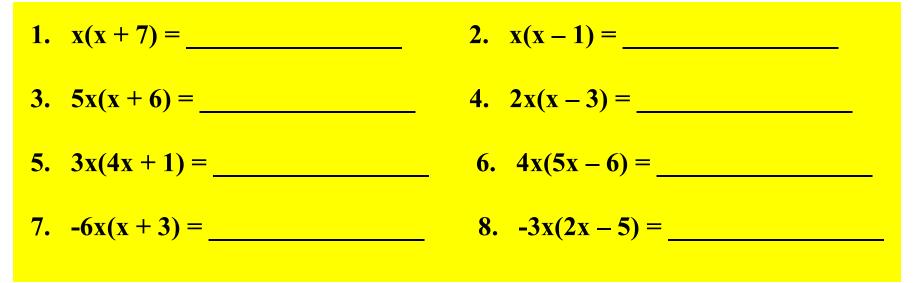
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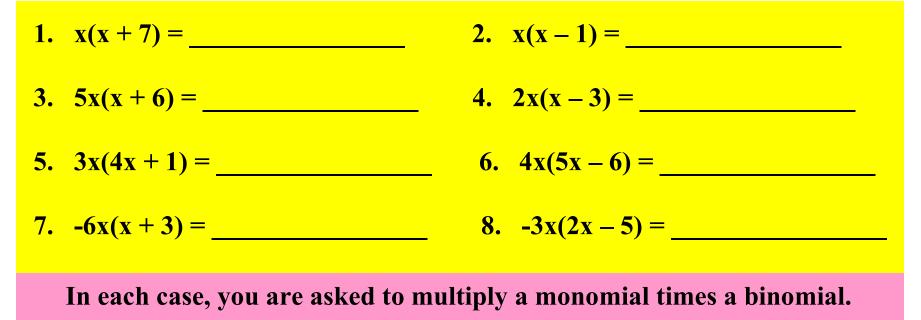
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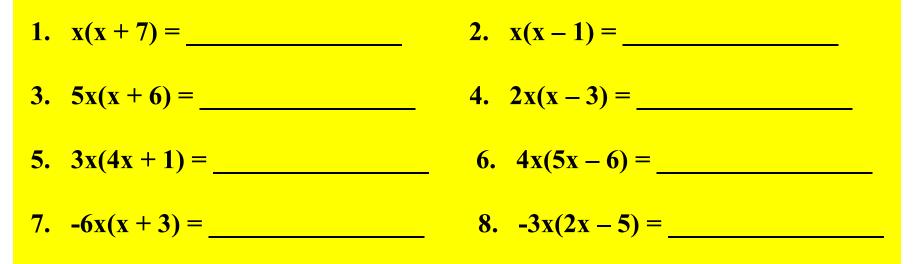
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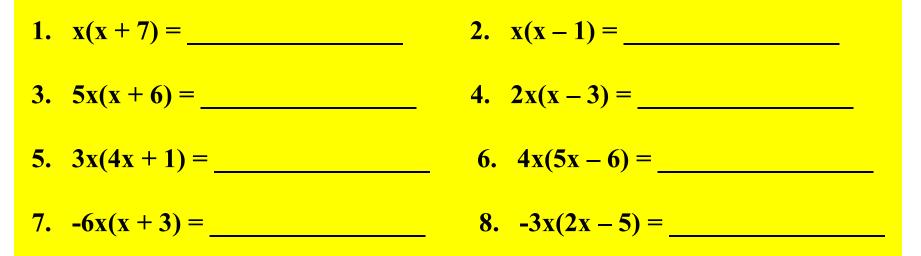


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In each case, you are asked to multiply a monomial times a binomial. These problems each involve one of the distributive laws stated below.

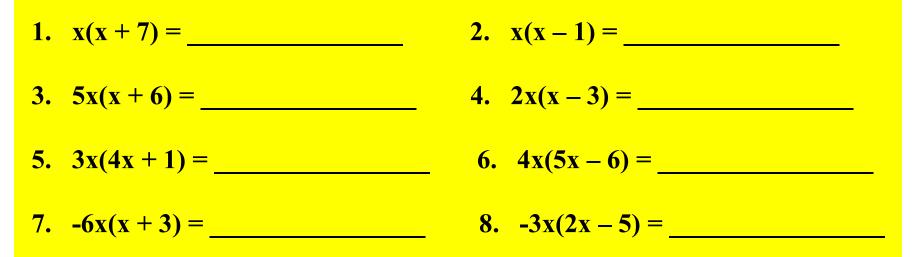
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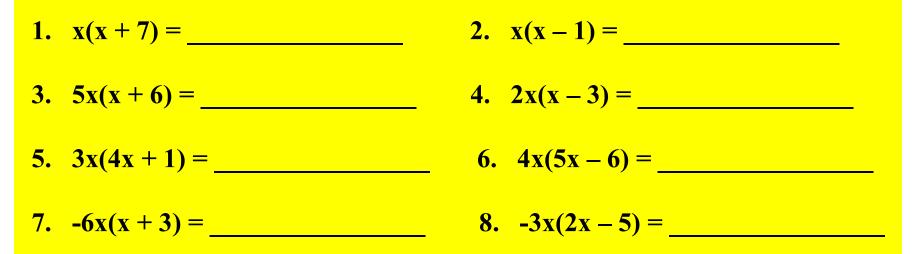
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Perform the indicated operations.

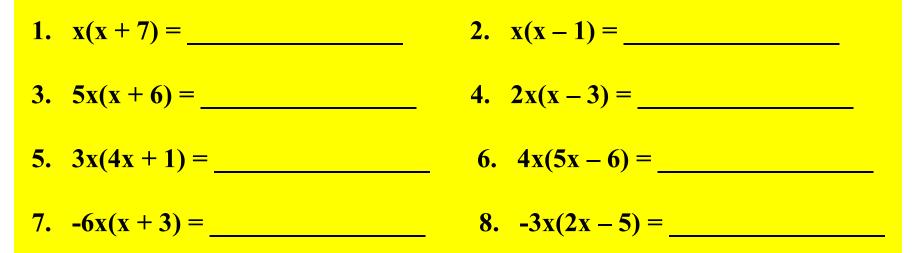


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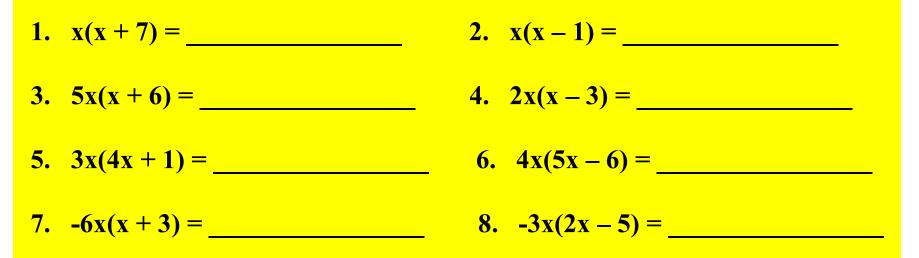
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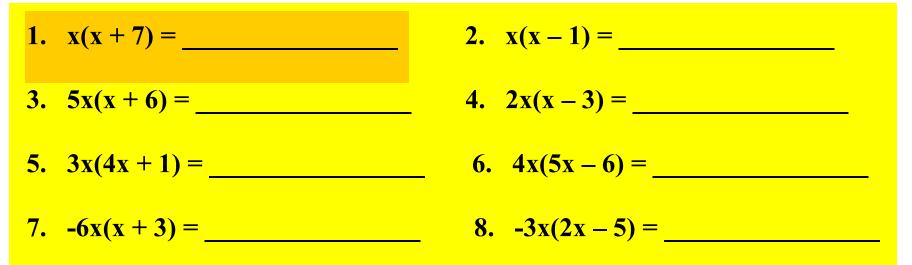
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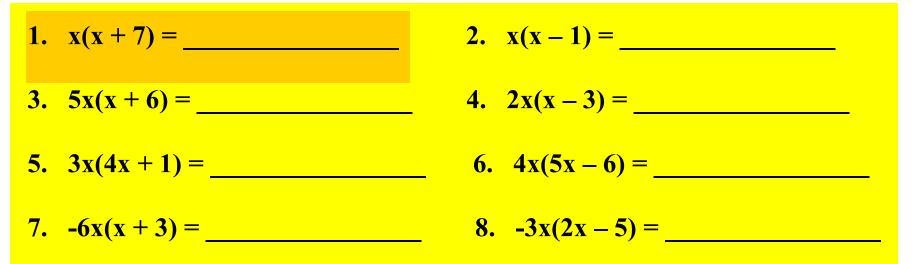
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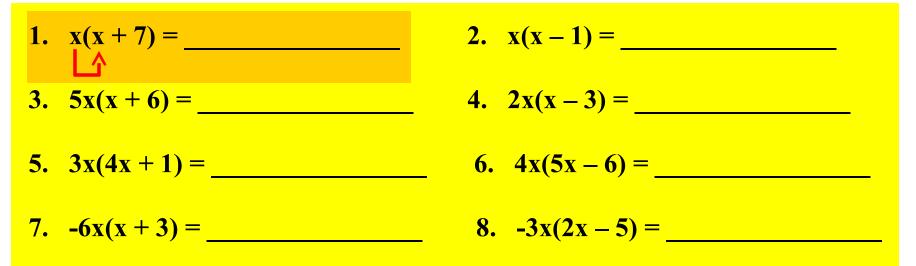
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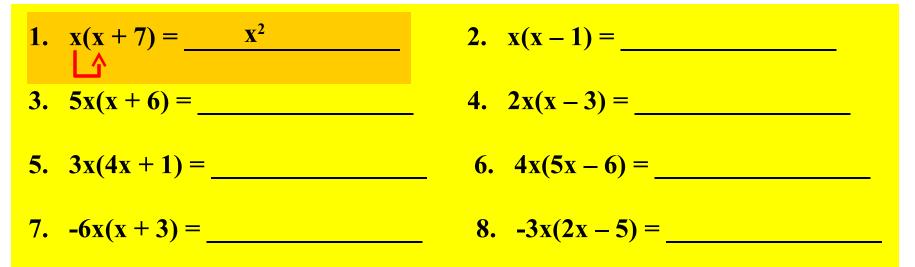
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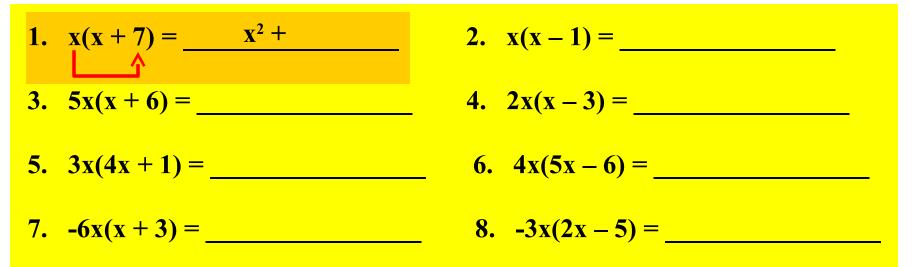
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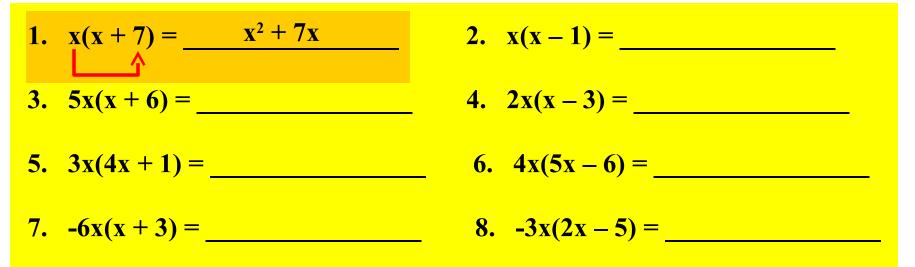
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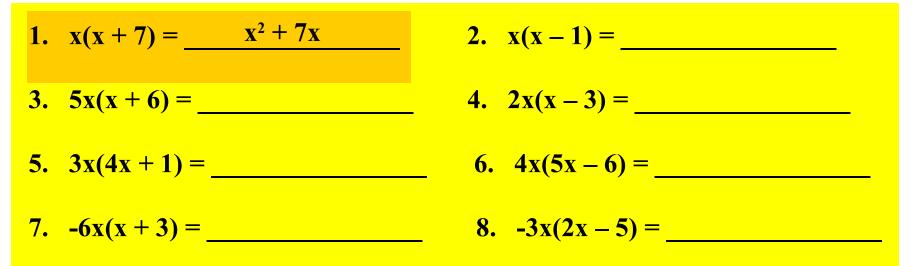
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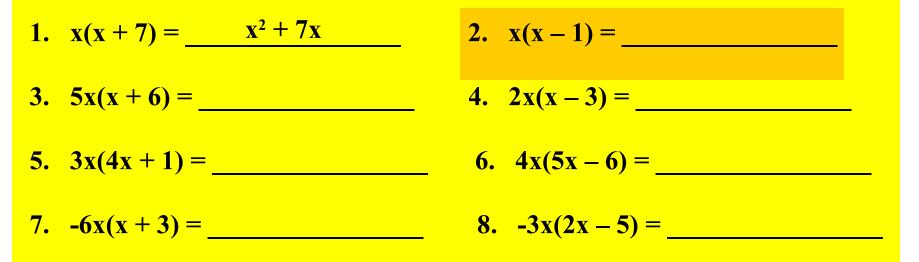
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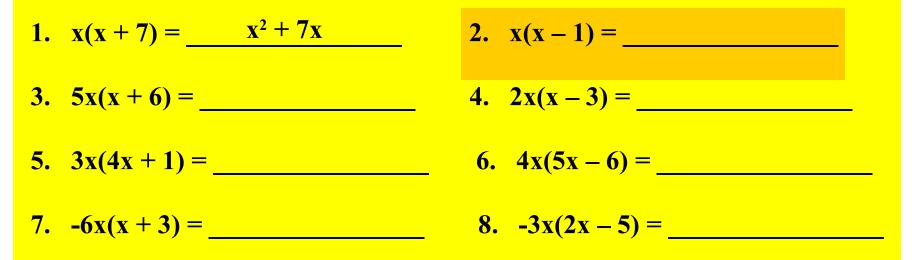
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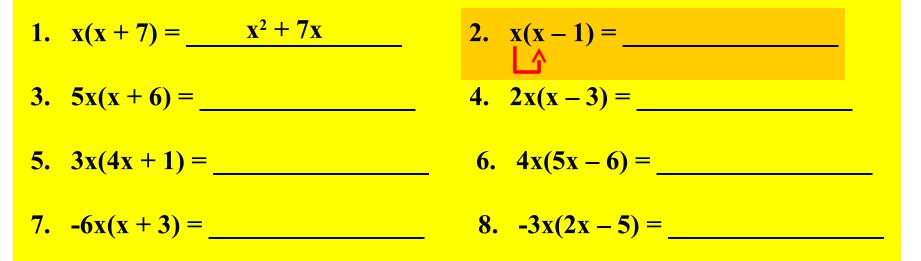
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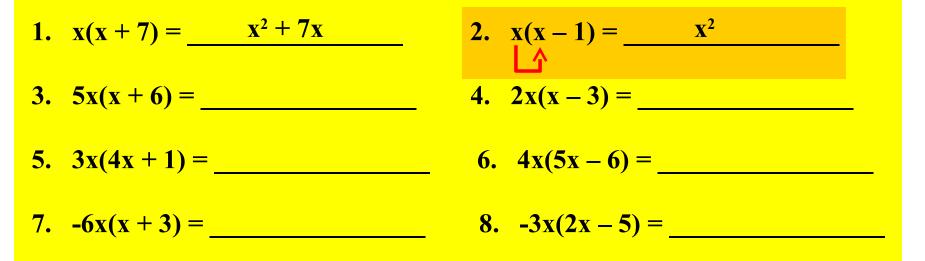
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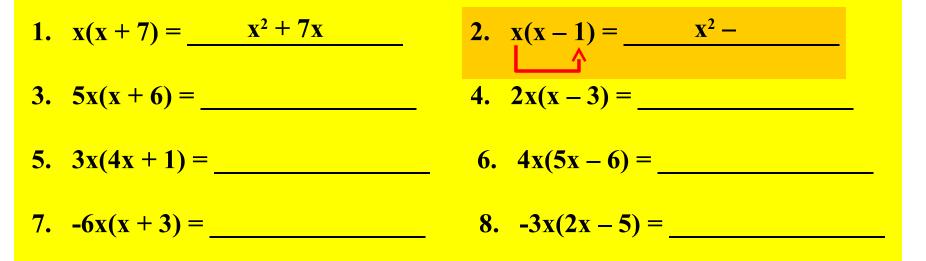
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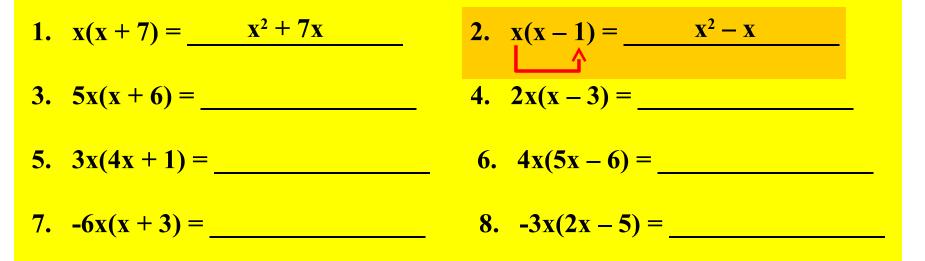
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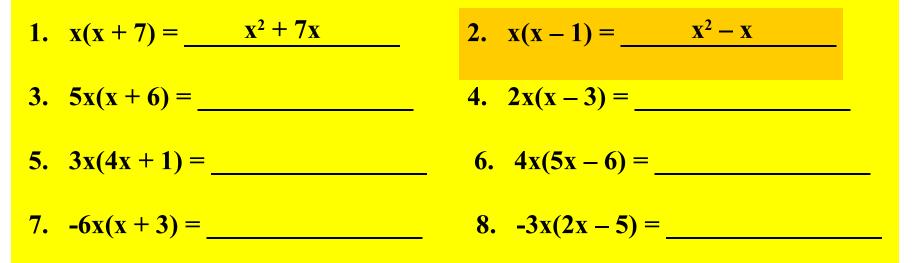
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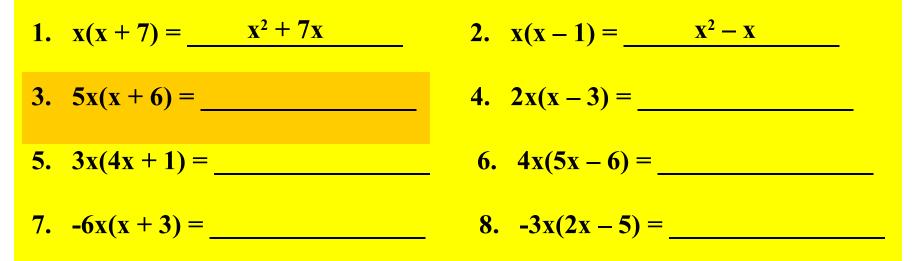
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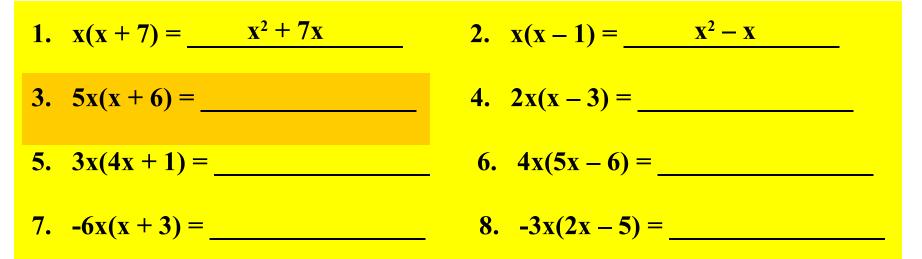
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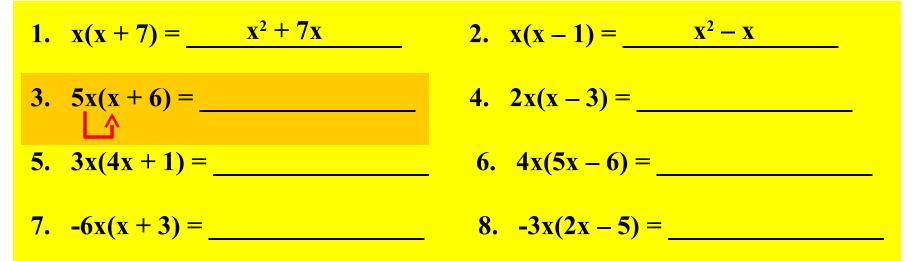
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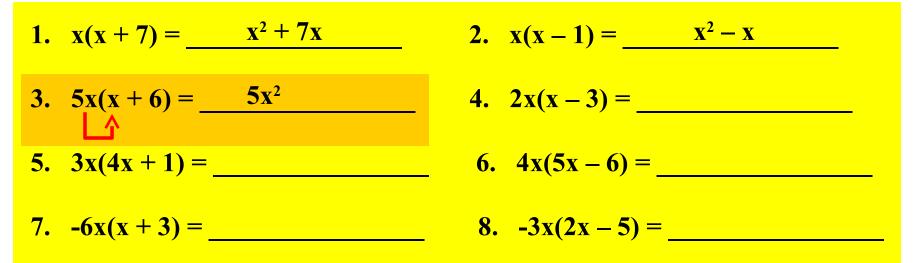
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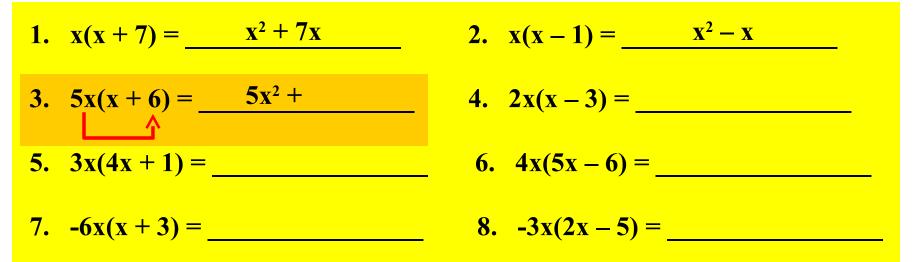
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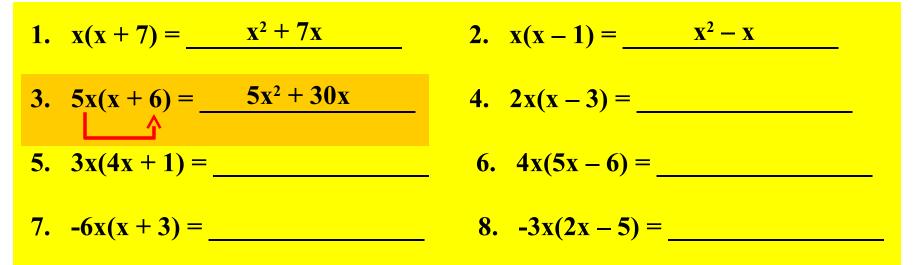
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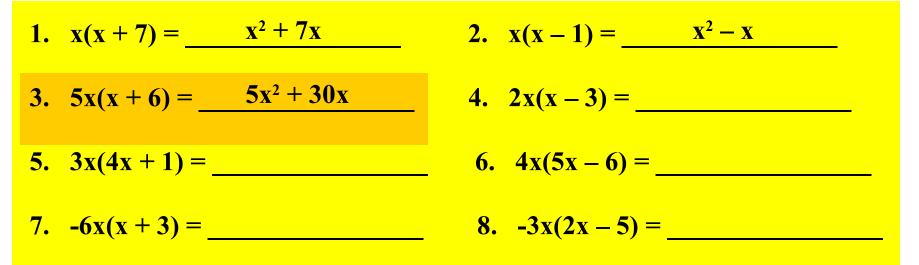
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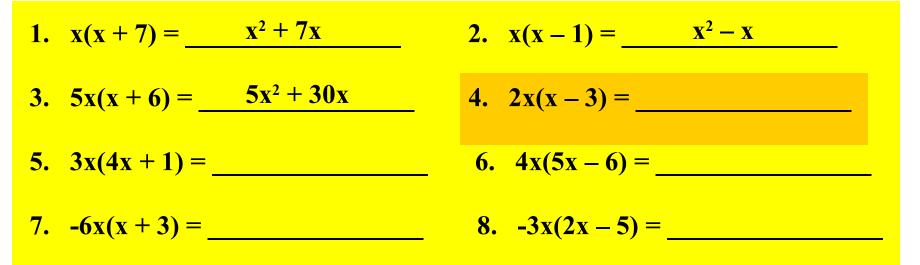
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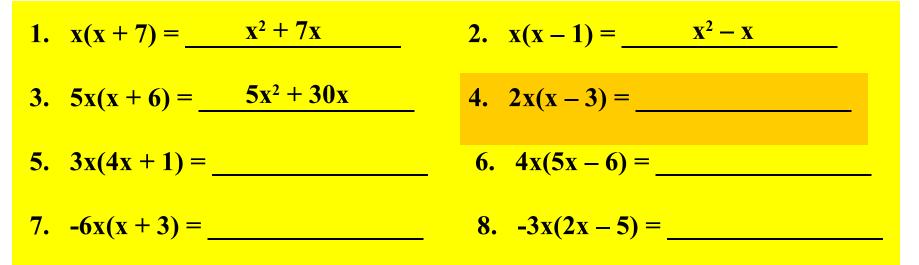
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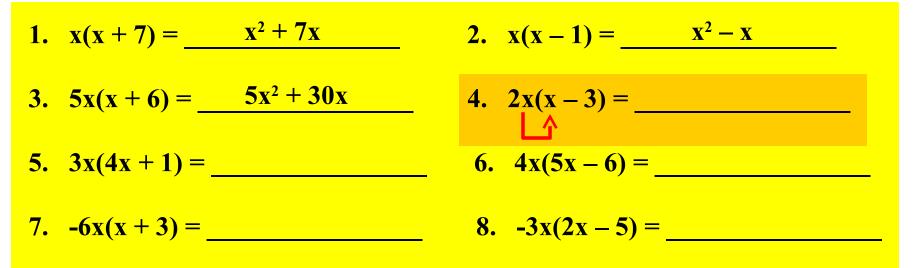
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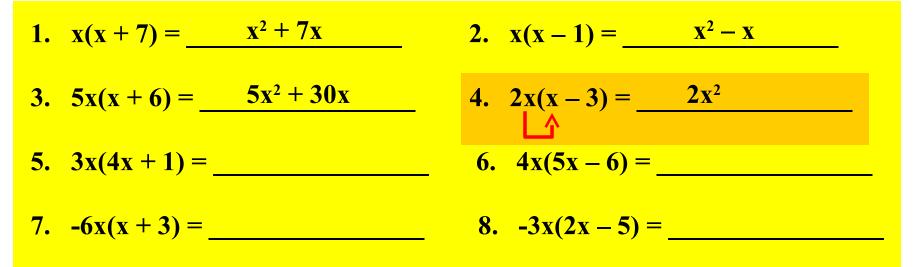
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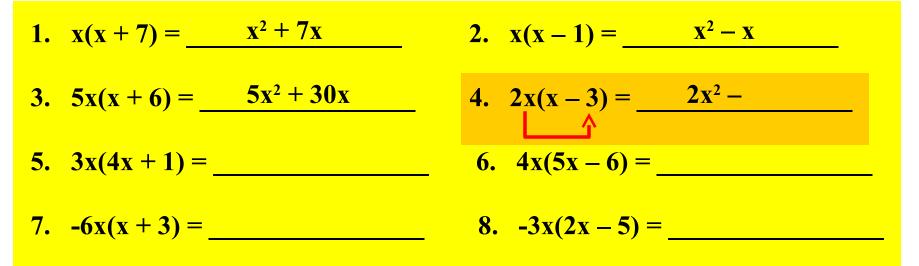
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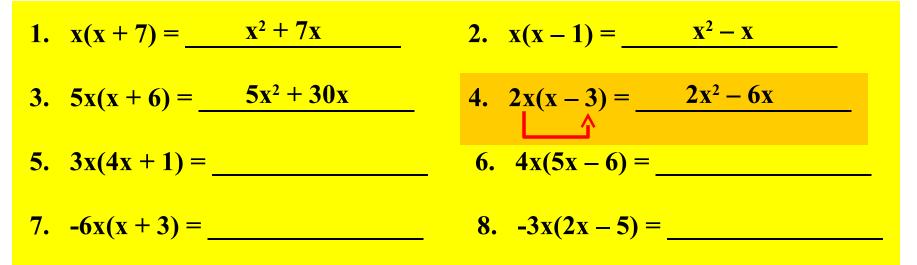
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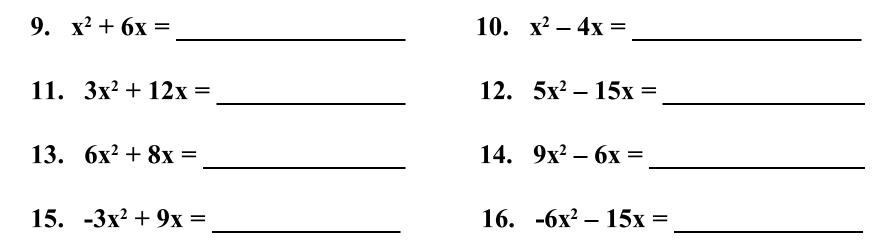
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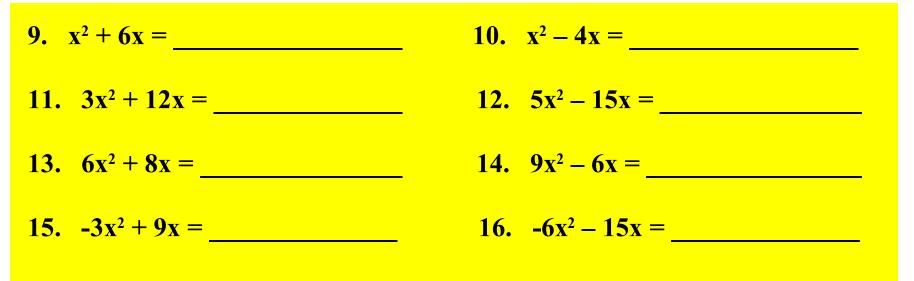
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The distributive laws can be re-written as factoring properties.

The Distributive Law for Multiplication over Addition: A(B + C) = AB + AC

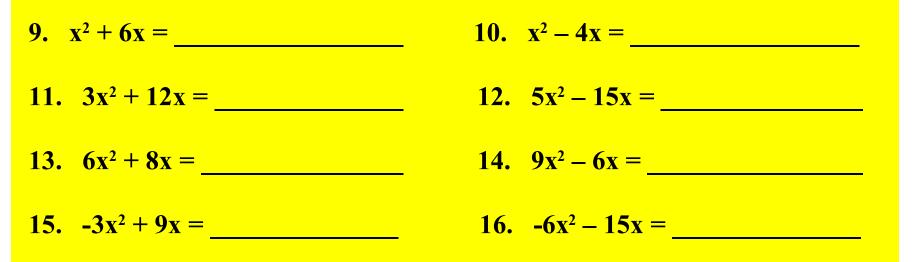
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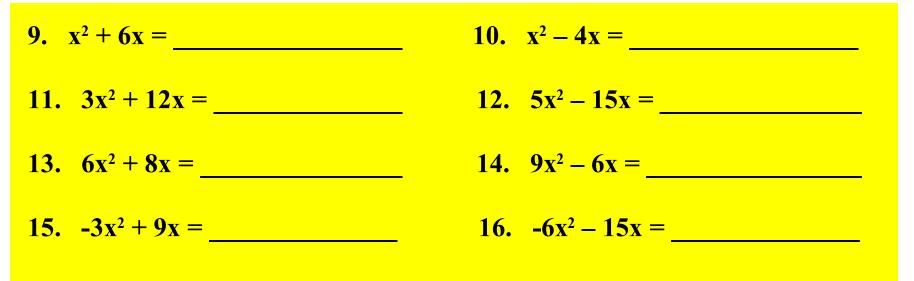
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Notice that A is the greatest common factor of the terms of the binomial.

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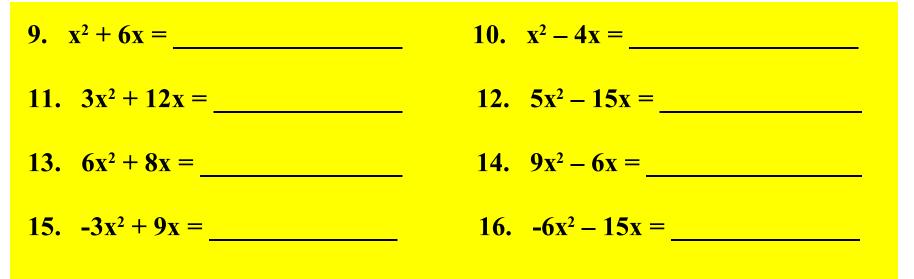
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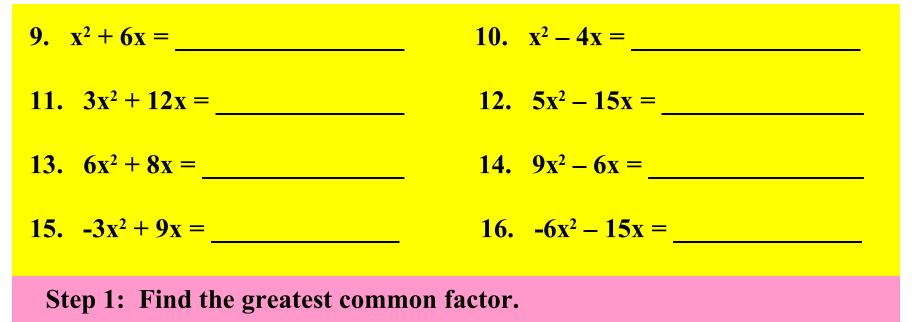
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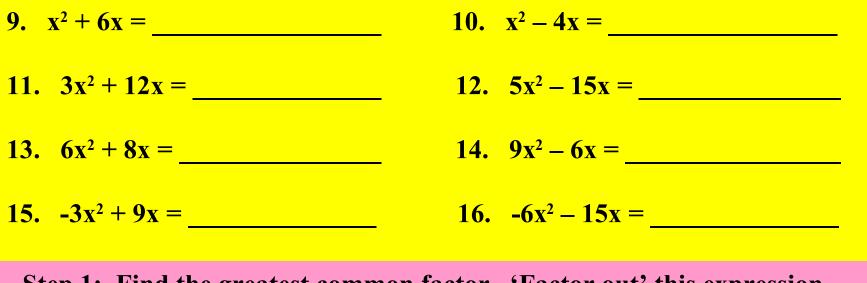
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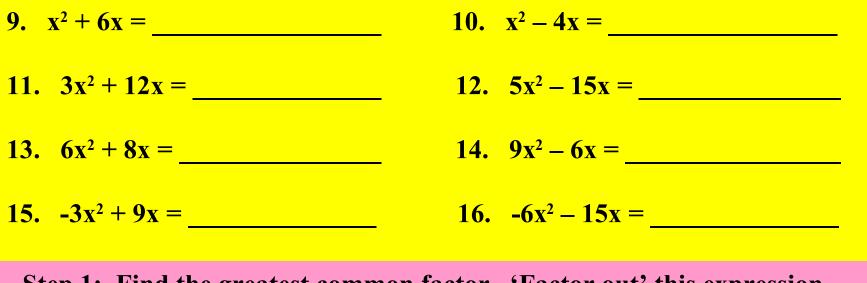
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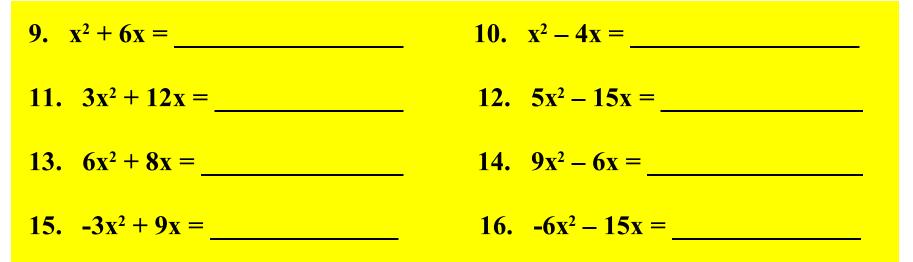
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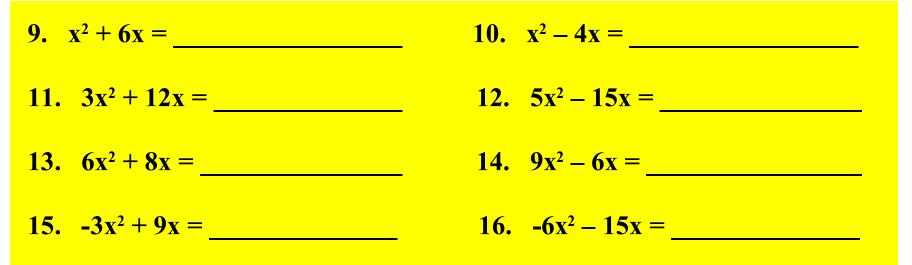
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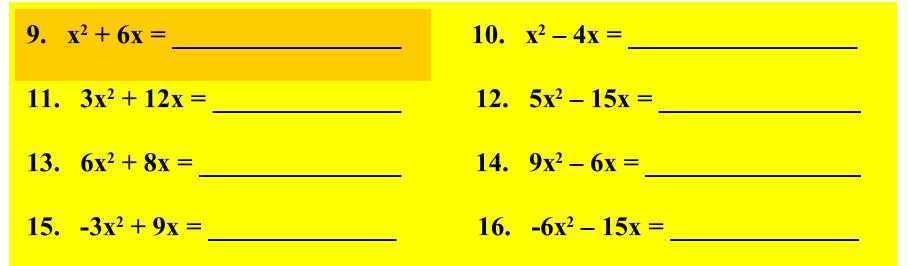
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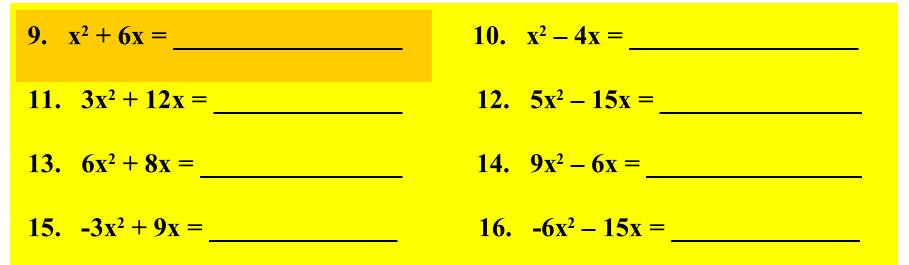
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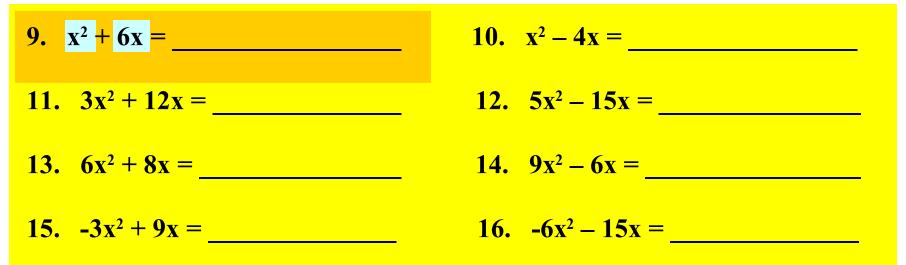
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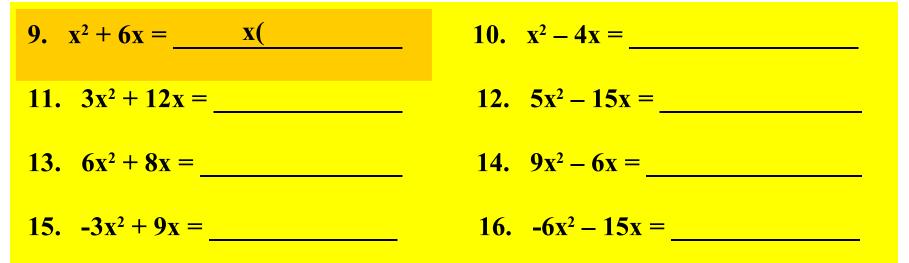
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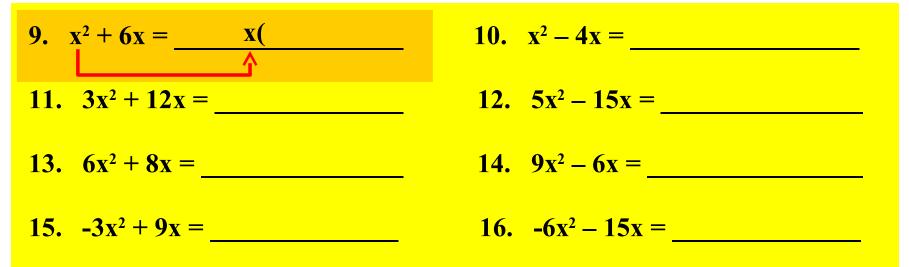
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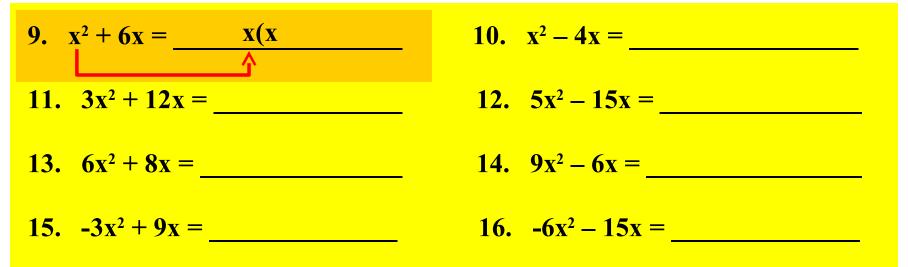
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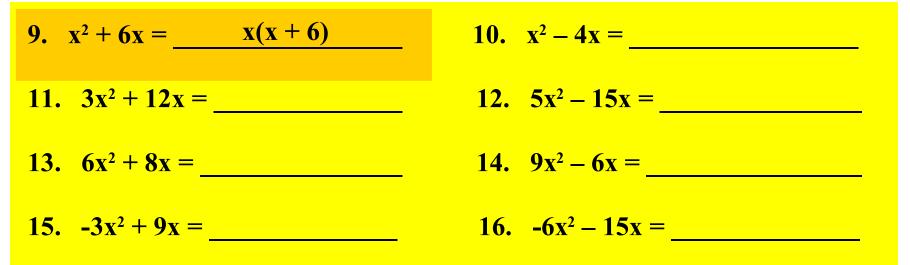
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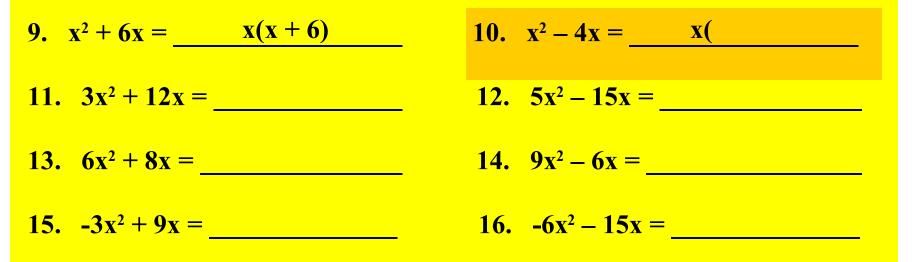
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 10. $x^2 - 4x = \underline{x(x+6)}$

 11. $3x^2 + 12x = \underline{x(x+6)}$
 12. $5x^2 - 15x = \underline{x(x+6)}$

 13. $6x^2 + 8x = \underline{x(x+6)}$
 14. $9x^2 - 6x = \underline{x(x+6)}$

 15. $-3x^2 + 9x = \underline{x(x+6)}$
 16. $-6x^2 - 15x = \underline{x(x+6)}$

Step 1: Find the greatest common factor. 'Factor out' this expression.Step 2: Divide each term of the binomial by this expression.

The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

Factor each of the following.

9.
$$x^2 + 6x = \underline{x(x + 6)}$$
 10. $x^2 - 4x = \underline{x(x - 16x)}$

 11. $3x^2 + 12x = \underline{x(x - 16x)}$
 12. $5x^2 - 15x = \underline{x(x - 16x)}$

 13. $6x^2 + 8x = \underline{x(x - 16x)}$
 14. $9x^2 - 6x = \underline{x(x - 16x)}$

 15. $-3x^2 + 9x = \underline{x(x - 16x)}$
 16. $-6x^2 - 15x = \underline{x(x - 16x)}$

Step 1: Find the greatest common factor. 'Factor out' this expression.Step 2: Divide each term of the binomial by this expression.

The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

Factor each of the following.

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$$x^2 + 6x = \underline{x(x+6)}$$
 10. $x^2 - 4x = \underline{x(x-16)}$

 11. $3x^2 + 12x = \underline{x(x-16)}$
 12. $5x^2 - 15x = \underline{x(x-16)}$

 13. $6x^2 + 8x = \underline{x(x-16)}$
 14. $9x^2 - 6x = \underline{x(x-16)}$

 15. $-3x^2 + 9x = \underline{x(x-16)}$
 16. $-6x^2 - 15x = \underline{x(x-16)}$

Step 1: Find the greatest common factor. 'Factor out' this expression.Step 2: Divide each term of the binomial by this expression.

The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

Factor each of the following.

Step 1: Find the greatest common factor. 'Factor out' this expression.Step 2: Divide each term of the binomial by this expression.

The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

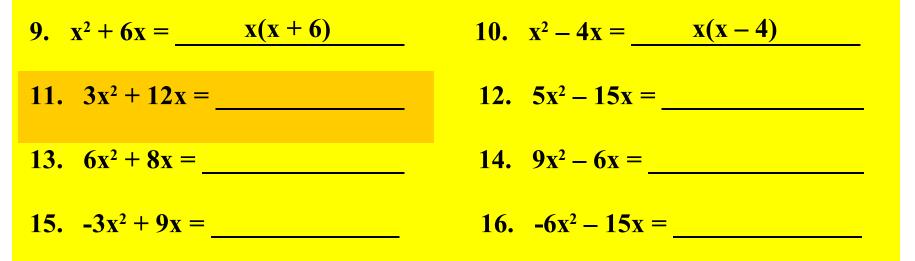
Factor each of the following.

9. $x^2 + 6x = x(x + 6)$	10. $x^2 - 4x = x(x - 4)$
11. $3x^2 + 12x =$	12. $5x^2 - 15x =$
13. $6x^2 + 8x =$	14. $9x^2 - 6x =$
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The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

Factor each of the following.



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The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

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$$x^2 + 6x = \underline{x(x+6)}$$
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 16. $-6x^2 - 15x = \underline{x(x-4)}$

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The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

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 10. $x^2 - 4x = \underline{x(x-4)}$

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The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

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Step 1: Find the greatest common factor. 'Factor out' this expression.Step 2: Divide each term of the binomial by this expression.

The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

Factor each of the following.

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$$x^2 + 6x = \underline{x(x+6)}$$
 10. $x^2 - 4x = \underline{x(x-4)}$

 11. $3x^2 + 12x = \underline{3x(}$
 12. $5x^2 - 15x = \underline{}$

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 16. $-6x^2 - 15x = \underline{}$

Step 1: Find the greatest common factor. 'Factor out' this expression.Step 2: <u>Divide</u> each term of the binomial by this expression.

The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)The Distributive Law for Multiplication over Subtraction: AB - AC = A(B - C)

Factor each of the following.

9.
$$x^2 + 6x = \underline{x(x+6)}$$
 10. $x^2 - 4x = \underline{x(x-4)}$

 11. $3x^2 + 12x = \underline{3x(}$
 12. $5x^2 - 15x = \underline{}$

 13. $6x^2 + 8x = \underline{}$
 14. $9x^2 - 6x = \underline{}$

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The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

Factor each of the following.

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$$x^2 + 6x = \underline{x(x+6)}$$
 10. $x^2 - 4x = \underline{x(x-4)}$

 11. $3x^2 + 12x = \underline{3x(}$
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The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

Factor each of the following.

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$$x^2 + 6x = \underline{x(x+6)}$$
 10. $x^2 - 4x = \underline{x(x-4)}$

 11. $3x^2 + 12x = \underline{3x(x)}$
 12. $5x^2 - 15x = \underline{x(x-4)}$

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 14. $9x^2 - 6x = \underline{x(x-4)}$

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 16. $-6x^2 - 15x = \underline{x(x-4)}$

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The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

Factor each of the following.

9.
$$x^2 + 6x = \underline{x(x+6)}$$
 10. $x^2 - 4x = \underline{x(x-4)}$

 11. $3x^2 + 12x = \underline{3x(x + 10^2)}$
 12. $5x^2 - 15x = \underline{14.9x^2 - 6x}$

 13. $6x^2 + 8x = \underline{14.9x^2 - 6x}$
 14. $9x^2 - 6x = \underline{16.6x^2 - 15x}$

 15. $-3x^2 + 9x = \underline{16.6x^2 - 15x} = \underline{16.6x^2 - 15x}$

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The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

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 12. $5x^2 - 15x = 5x(x-3)$

 13. $6x^2 + 8x = 2x($
 14. $9x^2 - 6x =$

 15. $-3x^2 + 9x =$
 16. $-6x^2 - 15x =$

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The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

Factor each of the following.

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$$x^2 + 6x = \underline{x(x+6)}$$
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The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)The Distributive Law for Multiplication over Subtraction: AB - AC = A(B - C)

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The Distributive Law for Multiplication over Addition:
 $AB + AC = A(B + C)$

The Distributive Law for Multiplication over Subtraction: AB - AC = A(B - C)

When the leading coefficient is negative, it is <u>customary</u> to factor out a negative coefficient.

Factor each of the following.

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The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)The Distributive Law for Multiplication over Subtraction: AB - AC = A(B - C)

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The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

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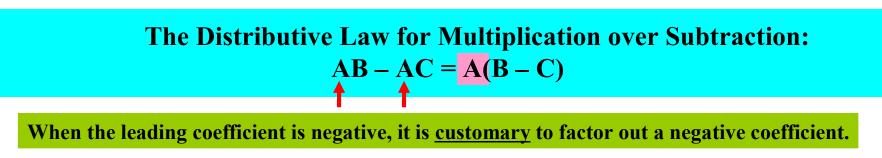
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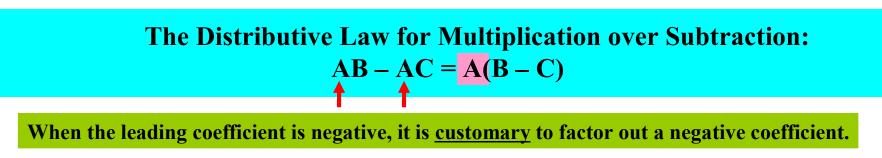
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> The Distributive Law for Multiplication over Addition: AB + AC = A(B + C)

Perform the indicated operations.

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These problems involve a special multiplication pattern.

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These problems involve a special multiplication pattern. Notice that in each problem we are multiplying two binomials. Also notice that one of the binomials is in the form A + B and the other binomial is in the form A - B.

 $(\mathbf{A} + \mathbf{B})(\mathbf{A} - \mathbf{B}) =$

Perform the indicated operations.

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Perform the indicated operations.

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$$(\mathbf{A} + \mathbf{B})(\mathbf{A} - \mathbf{B}) = \mathbf{A}^2 - \mathbf{A}\mathbf{B} + \mathbf{A}\mathbf{B} - \mathbf{B}^2$$

Perform the indicated operations.

17.
$$(x + 6)(x - 6) =$$
 18. $(x - 4)(x + 4) =$

 19. $(3x + 5)(3x - 5) =$
 20. $(4x - 3)(4x + 3) =$

These problems involve a special multiplication pattern. Notice that in each problem we are multiplying two binomials. Also notice that one of the binomials is in the form A + B and the other binomial is in the form A - B.

 $(A + B)(A - B) = A^2 - AB + AB - B^2 =$

Perform the indicated operations.

17.
$$(x + 6)(x - 6) =$$
 18. $(x - 4)(x + 4) =$

 19. $(3x + 5)(3x - 5) =$
 20. $(4x - 3)(4x + 3) =$

$$(\mathbf{A} + \mathbf{B})(\mathbf{A} - \mathbf{B}) = \mathbf{A}^2 - \mathbf{A}\mathbf{B} + \mathbf{A}\mathbf{B} - \mathbf{B}^2 =$$

Perform the indicated operations.

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 20. $(4x - 3)(4x + 3) =$

$$(\mathbf{A} + \mathbf{B})(\mathbf{A} - \mathbf{B}) = \mathbf{A}^2 - \mathbf{A}\mathbf{B} + \mathbf{A}\mathbf{B} - \mathbf{B}^2 = \mathbf{A}^2$$

Perform the indicated operations.

17.
$$(x + 6)(x - 6) =$$
 18. $(x - 4)(x + 4) =$

 19. $(3x + 5)(3x - 5) =$
 20. $(4x - 3)(4x + 3) =$

$$(A + B)(A - B) = A^{2} - AB + AB - B^{2} = A^{2} - B^{2}$$

Perform the indicated operations.

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 18. $(x - 4)(x + 4) =$

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 $(A + B)(A - B) = A^2 - AB + AB - B^2 = A^2 - B^2$

Perform the indicated operations.

17.
$$(x + 6)(x - 6) =$$
 18. $(x - 4)(x + 4) =$

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 20. $(4x - 3)(4x + 3) =$

$$(A + B)(A - B) = A^2 - AB + AB - B^2 = A^2 - B^2$$

$$(\mathbf{A} + \mathbf{B})(\mathbf{A} - \mathbf{B}) = \mathbf{A}^2 - \mathbf{B}^2$$

Perform the indicated operations.

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$$(x + 6)(x - 6) =$$
 18. $(x - 4)(x + 4) =$

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Perform the indicated operations.

17.
$$(x + 6)(x - 6) =$$
 18. $(x - 4)(x + 4) =$
 $= x^2$
 19. $(3x + 5)(3x - 5) =$
 20. $(4x - 3)(4x + 3) =$

These problems involve a special multiplication pattern. Notice that in each problem we are multiplying two binomials. Also notice that one of the binomials is in the form A + B and the other binomial is in the form A - B.

Perform the indicated operations.

17.
$$(x + 6)(x - 6) =$$
 18. $(x - 4)(x + 4) =$
 $= x^2 -$
 19. $(3x + 5)(3x - 5) =$
 20. $(4x - 3)(4x + 3) =$

These problems involve a special multiplication pattern. Notice that in each problem we are multiplying two binomials. Also notice that one of the binomials is in the form A + B and the other binomial is in the form A - B.

Perform the indicated operations.

17.
$$(x + 6)(x - 6) =$$
 18. $(x - 4)(x + 4) =$
 $= x^2 - 6^2$
 19. $(3x + 5)(3x - 5) =$
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Perform the indicated operations.

17.
$$(x + 6)(x - 6) = \underline{x^2}$$

= $x^2 - 6^2 =$
18. $(x - 4)(x + 4) = \underline{x^2 - 6^2} =$
19. $(3x + 5)(3x - 5) = \underline{x^2}$
20. $(4x - 3)(4x + 3) = \underline{x^2 - 6^2} =$

These problems involve a special multiplication pattern. Notice that in each problem we are multiplying two binomials. Also notice that one of the binomials is in the form A + B and the other binomial is in the form A - B.

Perform the indicated operations.

17.
$$(x + 6)(x - 6) = x^2 - x^2 - x^2 - x^2 - 6^2 = x^2 -$$

These problems involve a special multiplication pattern. Notice that in each problem we are multiplying two binomials. Also notice that one of the binomials is in the form A + B and the other binomial is in the form A - B.

Perform the indicated operations.

17.
$$(x + 6)(x - 6) = \underline{x^2 - 36}$$
 18. $(x - 4)(x + 4) = \underline{\qquad}$
 $= x^2 - 6^2 =$
 19. $(3x + 5)(3x - 5) = \underline{\qquad}$
 20. $(4x - 3)(4x + 3) = \underline{\qquad}$

These problems involve a special multiplication pattern. Notice that in each problem we are multiplying two binomials. Also notice that one of the binomials is in the form A + B and the other binomial is in the form A - B.

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$$(x + 6)(x - 6) = \underline{x^2 - 36}$$
 18. $(x - 4)(x + 4) = \underline{x^2}$
 $= x^2 - 6^2 = x^2$
 $= x^2$

 19. $(3x + 5)(3x - 5) = \underline{x^2 - 36}$
 20. $(4x - 3)(4x + 3) = \underline{x^2 - 36}$

These problems involve a special multiplication pattern. Notice that in each problem we are multiplying two binomials. Also notice that one of the binomials is in the form A + B and the other binomial is in the form A - B.

Perform the indicated operations.

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$$(x + 6)(x - 6) = \underline{x^2 - 36}$$
 18. $(x - 4)(x + 4) = \underline{x^2 - 36}$
 $= x^2 - 6^2 = x^2 - 36$
 $= x^2 - 36$

 19. $(3x + 5)(3x - 5) = \underline{x^2 - 36}$
 20. $(4x - 3)(4x + 3) = \underline{x^2 - 36}$

These problems involve a special multiplication pattern. Notice that in each problem we are multiplying two binomials. Also notice that one of the binomials is in the form A + B and the other binomial is in the form A - B.

Perform the indicated operations.

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$$(x + 6)(x - 6) = x^2 - 36$$
 18. $(x - 4)(x + 4) =$
 $= x^2 - 6^2 =$
 $= x^2 - 4^2$

 19. $(3x + 5)(3x - 5) =$
 20. $(4x - 3)(4x + 3) =$

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Perform the indicated operations.

17.
$$(x + 6)(x - 6) = \underline{x^2 - 36}$$

= $x^2 - 6^2 =$
18. $(x - 4)(x + 4) = \underline{x^2 - 4^2} =$
19. $(3x + 5)(3x - 5) = \underline{20}$. $(4x - 3)(4x + 3) = \underline{20}$

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17.
$$(x + 6)(x - 6) = \underline{x^2 - 36}$$

= $x^2 - 6^2 =$
18. $(x - 4)(x + 4) = \underline{x^2 - 16}$
= $x^2 - 4^2 =$
19. $(3x + 5)(3x - 5) = \underline{\qquad}$
20. $(4x - 3)(4x + 3) = \underline{\qquad}$

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18. $(x - 4)(x + 4) = \underline{x^2 - 16}$
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19. $(3x + 5)(3x - 5) = \underline{20}$
= 20. $(4x - 3)(4x + 3) = \underline{20}$

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18. $(x - 4)(x + 4) = \underline{x^2 - 16}$
= $x^2 - 4^2 =$
19. $(3x + 5)(3x - 5) = \underline{\qquad}$
= $(3x)^2$
20. $(4x - 3)(4x + 3) = \underline{\qquad}$

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19. $(3x + 5)(3x - 5) = \underline{\qquad}$
= $(3x)^2 -$
20. $(4x - 3)(4x + 3) = \underline{\qquad}$

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= $x^2 - 4^2 =$
19. $(3x + 5)(3x - 5) = \underline{\qquad}$
= $(3x)^2 - 5^2$
20. $(4x - 3)(4x + 3) = \underline{\qquad}$

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18. $(x - 4)(x + 4) = \underline{x^2 - 16}$
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19. $(3x + 5)(3x - 5) = \underline{\qquad}$
= $(3x)^2 - 5^2 =$
20. $(4x - 3)(4x + 3) = \underline{\qquad}$

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18. $(x - 4)(x + 4) = \underline{x^2 - 16}$
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19. $(3x + 5)(3x - 5) = \underline{9x^2}$
= $(3x)^2 - 5^2 =$
20. $(4x - 3)(4x + 3) = \underline{$

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18. $(x - 4)(x + 4) = \underline{x^2 - 16}$
= $x^2 - 4^2 =$
19. $(3x + 5)(3x - 5) = \underline{9x^2 - 16}$
= $(3x)^2 - 5^2 =$
20. $(4x - 3)(4x + 3) = \underline{10}$

These problems involve a special multiplication pattern. Notice that in each problem we are multiplying two binomials. Also notice that one of the binomials is in the form A + B and the other binomial is in the form A - B.

Perform the indicated operations.

17.
$$(x + 6)(x - 6) = \underline{x^2 - 36}$$

= $x^2 - 6^2 =$
18. $(x - 4)(x + 4) = \underline{x^2 - 16}$
= $x^2 - 4^2 =$
19. $(3x + 5)(3x - 5) = \underline{9x^2 - 25}$
= $(3x)^2 - 5^2 =$
20. $(4x - 3)(4x + 3) = \underline{$

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19. $(3x + 5)(3x - 5) = \underline{9x^2 - 25}$
= $(3x)^2 - 5^2 =$
20. $(4x - 3)(4x + 3) = \underline{\qquad}$
=

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18. $(x - 4)(x + 4) = \underline{x^2 - 16}$
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19. $(3x + 5)(3x - 5) = \underline{9x^2 - 25}$
= $(3x)^2 - 5^2 =$
20. $(4x - 3)(4x + 3) = \underline{(4x)^2}$

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18. $(x - 4)(x + 4) = \underline{x^2 - 16}$
= $x^2 - 4^2 =$
19. $(3x + 5)(3x - 5) = \underline{9x^2 - 25}$
= $(3x)^2 - 5^2 =$
20. $(4x - 3)(4x + 3) = \underline{(4x)^2 - 3}$

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18. $(x - 4)(x + 4) = \underline{x^2 - 16}$
= $x^2 - 4^2 =$
19. $(3x + 5)(3x - 5) = \underline{9x^2 - 25}$
= $(3x)^2 - 5^2 =$
20. $(4x - 3)(4x + 3) = \underline{(4x)^2 - 3^2}$

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= $x^2 - 6^2 =$
18. $(x - 4)(x + 4) = \underline{x^2 - 16}$
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19. $(3x + 5)(3x - 5) = \underline{9x^2 - 25}$
= $(3x)^2 - 5^2 =$
20. $(4x - 3)(4x + 3) = \underline{(4x)^2 - 3^2} =$

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18. $(x - 4)(x + 4) = \underline{x^2 - 16}$
= $x^2 - 4^2 =$
19. $(3x + 5)(3x - 5) = \underline{9x^2 - 25}$
= $(3x)^2 - 5^2 =$
20. $(4x - 3)(4x + 3) = \underline{16x^2}$
= $(4x)^2 - 3^2 =$

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18. $(x - 4)(x + 4) = \underline{x^2 - 16}$
= $x^2 - 4^2 =$
19. $(3x + 5)(3x - 5) = \underline{9x^2 - 25}$
= $(3x)^2 - 5^2 =$
20. $(4x - 3)(4x + 3) = \underline{16x^2 - 16x^2}$
= $(4x)^2 - 3^2 =$

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18. $(x - 4)(x + 4) = \underline{x^2 - 16}$
= $x^2 - 4^2 =$
19. $(3x + 5)(3x - 5) = \underline{9x^2 - 25}$
= $(3x)^2 - 5^2 =$
20. $(4x - 3)(4x + 3) = \underline{16x^2 - 9}$
= $(4x)^2 - 3^2 =$

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19. $(3x + 5)(3x - 5) = \underline{9x^2 - 25}$
= $(3x)^2 - 5^2 =$
20. $(4x - 3)(4x + 3) = \underline{16x^2 - 9}$
= $(4x)^2 - 3^2 =$

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= $x^2 - 4^2 =$

19.
$$(3x + 5)(3x - 5) = 9x^2 - 25$$

= $(3x)^2 - 5^2 = 20$. $(4x - 3)(4x + 3) = 16x^2 - 9$
= $(4x)^2 - 3^2 = (4x)^2 - 3^2 = 20$

These problems involve a special multiplication pattern. Notice that in each problem we are multiplying two binomials. Also notice that one of the binomials is in the form A + B and the other binomial is in the form A - B.

Factor each of the following.

 21. $x^2 - 49 =$ 26. $x^2 - 4 =$

 23. $36x^2 - 25 =$ 24. $4x^2 - 81 =$

$$(\mathbf{A} + \mathbf{B})(\mathbf{A} - \mathbf{B}) = \mathbf{A}^2 - \mathbf{B}^2$$

Factor each of the following.

21. $x^2 - 49 =$ 26. $x^2 - 4 =$ 23. $36x^2 - 25 =$ 24. $4x^2 - 81 =$

The multiplication pattern below can be used to factor.

Factor each of the following.

21. $x^2 - 49 =$ 26. $x^2 - 4 =$ 23. $36x^2 - 25 =$ 24. $4x^2 - 81 =$

The multiplication pattern below can be used to factor.

$$(A + B)(A - B) = A^2 - B^2$$

 $A^2 - B^2 = (A + B)(A - B)$

Factor each of the following.

21. $x^2 - 49 =$ 26. $x^2 - 4 =$ 23. $36x^2 - 25 =$ 24. $4x^2 - 81 =$

The multiplication pattern below can be used to factor. This factoring pattern is called 'the difference of two squares'.

$$(A + B)(A - B) = A^2 - B^2$$

 $A^2 - B^2 = (A + B)(A - B)$

Factor each of the following.

21. $x^2 - 49 =$ 26. $x^2 - 4 =$ 23. $36x^2 - 25 =$ 24. $4x^2 - 81 =$

The Difference of Two Squares Factoring Pattern

Factor each of the following.

21.
$$x^2 - 49 =$$
 26. $x^2 - 4 =$

 23. $36x^2 - 25 =$
 24. $4x^2 - 81 =$

The Difference of Two Squares Factoring Pattern

Factor each of the following.

21.
$$x^2 - 49 = _$$
 26. $x^2 - 4 = _$

 =
 23. $36x^2 - 25 = _$
 24. $4x^2 - 81 = _$

The Difference of Two Squares Factoring Pattern

Factor each of the following.

21.
$$x^2 - 49 = _$$
 26. $x^2 - 4 = _$
 $= x^2$
 26. $x^2 - 4 = _$

 23. $36x^2 - 25 = _$
 24. $4x^2 - 81 = _$

The Difference of Two Squares Factoring Pattern

Factor each of the following.

21.
$$x^2 - 49 =$$

 26. $x^2 - 4 =$ _____

 $= x^2 -$
 26. $x^2 - 4 =$ _____

 23. $36x^2 - 25 =$ _____
 24. $4x^2 - 81 =$ _____

The Difference of Two Squares Factoring Pattern

Factor each of the following.

21.
$$x^2 - 49 =$$

 26. $x^2 - 4 =$ _____

 $= x^2 - 7^2$
 26. $x^2 - 4 =$ _____

 23. $36x^2 - 25 =$ _____
 24. $4x^2 - 81 =$ _____

The Difference of Two Squares Factoring Pattern

Factor each of the following.

21.
$$x^2 - 49 =$$

 26. $x^2 - 4 =$ _____

 $= x^2 - 7^2 =$
 26. $x^2 - 4 =$ _____

 23. $36x^2 - 25 =$ _____
 24. $4x^2 - 81 =$ _____

The Difference of Two Squares Factoring Pattern

Factor each of the following.

21.
$$x^2 - 49 = (x + 7)($$

= $x^2 - 7^2 =$
26. $x^2 - 4 =$
23. $36x^2 - 25 =$
24. $4x^2 - 81 =$

The Difference of Two Squares Factoring Pattern

Factor each of the following.

21.
$$x^2 - 49 = (x + 7)(x - 7)$$

= $x^2 - 7^2 =$
26. $x^2 - 4 =$
23. $36x^2 - 25 =$
24. $4x^2 - 81 =$

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24. $4x^2 - 81 =$

The Difference of Two Squares Factoring Pattern

Factor each of the following.

21.
$$x^2 - 49 = (x + 7)(x - 7)$$

= $x^2 - 7^2 =$
26. $x^2 - 4 = -$
= x^2
23. $36x^2 - 25 = -$
24. $4x^2 - 81 = -$

The Difference of Two Squares Factoring Pattern

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$$x^2 - 49 = (x + 7)(x - 7)$$

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 $= x^{2} - 7^{2} = 26. \quad x^{2} - 4 = (x + 2)(x - 2)$
 $= x^{2} - 2^{2} = 22$
23. $36x^{2} - 25 = 22$
 $= (6x)^{2}$
24. $4x^{2} - 81 = 22$

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 $= x^{2} - 2^{2} = 26.$
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 $= (6x)^{2} - 25 = 26.$
24. $4x^{2} - 81 = 26.$
25. $4x^{2} - 81 = 26.$
26. $x^{2} - 4 = 26.$
27. $x^{2} - 25 = 26.$
27. $x^{2} - 25.$
27. $x^{2} - 2$

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The Difference of Two Squares Factoring Pattern

Perform the indicated operations.

25.
$$(x + 3)(x + 5) =$$
 _____ 26. $(x + 2)(x + 7) =$ _____
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Notice that in each problem we are multiplying two binomials.

Perform the indicated operations.

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Notice that in each problem we are multiplying two binomials. The first term in each binomial is x. The second term is a number.

 $(\mathbf{x} + \mathbf{A})(\mathbf{x} + \mathbf{B}) =$

Perform the indicated operations.

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$$(\mathbf{x} + \mathbf{A})(\mathbf{x} + \mathbf{B}) = \mathbf{x}^2 + \mathbf{B}\mathbf{x}$$

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Notice that in each problem we are multiplying two binomials. The first term in each binomial is x. The second term is a number.

 $(x + A)(x + B) = x^{2} + Bx + Ax + AB =$

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 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

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 $(x + A)(x + B) = x^2 + (A + B)x + AB$

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 $(x + A)(x + B) = x^2 + (A + B)x + AB$

This pattern can be used to multiply two binomials of this type.

Perform the indicated operations.

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 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

This pattern can be used to multiply two binomials of this type. Notice that the first term is x².

Perform the indicated operations.

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 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

This pattern can be used to multiply two binomials of this type. Notice that the first term is x^2 . The coefficient of the 'middle term', the x-term, is the <u>sum of A and B</u>.

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Perform the indicated operations.

25.
$$(x + 3)(x + 5) = \underline{x^2}$$
 26. $(x + 2)(x + 7) = \underline{$

 27. $(x - 4)(x - 3) = \underline{$
 28. $(x - 5)(x - 6) = \underline{$

 29. $(x + 6)(x - 2) = \underline{$
 30. $(x + 7)(x - 5) = \underline{$

 31. $(x - 9)(x + 2) = \underline{$
 32. $(x - 5)(x + 1) = \underline{$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

25.
$$(x + 3)(x + 5) = \underline{x^2}$$
 26. $(x + 2)(x + 7) = \underline{$

 A = 3
 27. $(x - 4)(x - 3) = \underline{$
 28. $(x - 5)(x - 6) = \underline{$

 29. $(x + 6)(x - 2) = \underline{$
 30. $(x + 7)(x - 5) = \underline{$

 31. $(x - 9)(x + 2) = \underline{$
 32. $(x - 5)(x + 1) = \underline{$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

$$25. (x + 3)(x + 5) = \underline{x^{2}}$$

$$A = 3 \underline{B} = 5$$

$$26. (x + 2)(x + 7) = \underline{\qquad}$$

$$27. (x - 4)(x - 3) = \underline{\qquad}$$

$$28. (x - 5)(x - 6) = \underline{\qquad}$$

$$29. (x + 6)(x - 2) = \underline{\qquad}$$

$$30. (x + 7)(x - 5) = \underline{\qquad}$$

$$31. (x - 9)(x + 2) = \underline{\qquad}$$

$$32. (x - 5)(x + 1) = \underline{\qquad}$$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

25.
$$(x + 3)(x + 5) = \underline{x^2}$$
 26. $(x + 2)(x + 7) = \underline{\qquad}$

 A = 3 B = 5 A + B = 8
 28. $(x - 5)(x - 6) = \underline{\qquad}$

 27. $(x - 4)(x - 3) = \underline{\qquad}$
 28. $(x - 5)(x - 6) = \underline{\qquad}$

 29. $(x + 6)(x - 2) = \underline{\qquad}$
 30. $(x + 7)(x - 5) = \underline{\qquad}$

 31. $(x - 9)(x + 2) = \underline{\qquad}$
 32. $(x - 5)(x + 1) = \underline{\qquad}$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

25.
$$(x + 3)(x + 5) = \underline{x^2 + 8x}$$
 26. $(x + 2)(x + 7) = \underline{$

 A = 3 B = 5 A + B = 8
 28. $(x - 5)(x - 6) = \underline{$

 27. $(x - 4)(x - 3) = \underline{$
 28. $(x - 5)(x - 6) = \underline{$

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 31. $(x - 9)(x + 2) = \underline{$
 32. $(x - 5)(x + 1) = \underline{$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

25.
$$(x + 3)(x + 5) = \underline{x^2 + 8x}$$
 26. $(x + 2)(x + 7) = \underline{$

 A = 3 B = 5 A + B = 8 AB = 15
 28. $(x - 5)(x - 6) = \underline{$

 27. $(x - 4)(x - 3) = \underline{$
 28. $(x - 5)(x - 6) = \underline{$

 29. $(x + 6)(x - 2) = \underline{$
 30. $(x + 7)(x - 5) = \underline{$

 31. $(x - 9)(x + 2) = \underline{$
 32. $(x - 5)(x + 1) = \underline{$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

25.
$$(x + 3)(x + 5) = \underline{x^2 + 8x + 15}$$
 26. $(x + 2)(x + 7) = \underline{$
 $A = 3$
 $B = 5$
 $A + B = 8$
 $AB = 15$

 27. $(x - 4)(x - 3) = \underline{$
 28. $(x - 5)(x - 6) = \underline{$

 29. $(x + 6)(x - 2) = \underline{$
 30. $(x + 7)(x - 5) = \underline{$

 31. $(x - 9)(x + 2) = \underline{$
 32. $(x - 5)(x + 1) = \underline{$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

$$25. (x + 3)(x + 5) = \underline{x^2 + 8x + 15}_{A = 3 B = 5 A + B = 8 AB = 15}$$

$$26. (x + 2)(x + 7) = \underline{\qquad}$$

$$27. (x - 4)(x - 3) = \underline{\qquad}$$

$$28. (x - 5)(x - 6) = \underline{\qquad}$$

$$29. (x + 6)(x - 2) = \underline{\qquad}$$

$$30. (x + 7)(x - 5) = \underline{\qquad}$$

$$31. (x - 9)(x + 2) = \underline{\qquad}$$

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 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

$$25. (x + 3)(x + 5) = \underline{x^2 + 8x + 15} \\ A = 3 B = 5 A + B = 8 AB = 15$$

$$27. (x - 4)(x - 3) = \underline{ 28. (x - 5)(x - 6) = \underline{ 28.$$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

$$25. (x + 3)(x + 5) = \underline{x^2 + 8x + 15} \\ A = 3 B = 5 A + B = 8 AB = 15$$

$$26. (x + 2)(x + 7) = \underline{x^2} \\ 27. (x - 4)(x - 3) = \underline{28. (x - 5)(x - 6)} = \underline$$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

25.
$$(x + 3)(x + 5) = \underline{x^2 + 8x + 15}$$

 $A = 3 B = 5 A + B = 8 AB = 15$
26. $(x + 2)(x + 7) = \underline{x^2}$
 $A = 2 B = 7$
27. $(x - 4)(x - 3) = \underline{28.} (x - 5)(x - 6) = \underline{29.} (x + 6)(x - 2) = \underline{30.} (x + 7)(x - 5) = \underline{29.} (x - 5)(x + 1) = \underline{29.} (x - 9)(x + 2) = \underline{29.} (x - 5)(x + 1) = \underline{29.} (x - 5)(x + 1) = \underline{29.} = \underline{29.} (x - 9)(x + 2) = \underline{29.} = \underline$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

25.
$$(x + 3)(x + 5) = \underline{x^2 + 8x + 15}$$
 26. $(x + 2)(x + 7) = \underline{x^2}$
 $A = 3$
 $B = 5$
 $A + B = 8$
 $AB = 15$

 27. $(x - 4)(x - 3) = \underline{ 28. (x - 5)(x - 6) = \underline{ 2$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

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 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

25.
$$(x + 3)(x + 5) = \underline{x^2 + 8x + 15}$$
 26. $(x + 2)(x + 7) = \underline{x^2 + 9x + 14}$
 $A = 3$
 $B = 5$
 $A + B = 8$
 $AB = 15$

 27. $(x - 4)(x - 3) = \underline{ 28. (x - 5)(x - 6) = \underline{ 28. (x - 5)(x -$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

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$$(x + 3)(x + 5) = \underline{x^2 + 8x + 15}$$

 $A = 3 B = 5 A + B = 8 AB = 15$
26. $(x + 2)(x + 7) = \underline{x^2 + 9x + 14}$
 $A = 2 B = 7 A + B = 9 AB = 14$
27. $(x - 4)(x - 3) = \underline{x^2}$
28. $(x - 5)(x - 6) = \underline{$
29. $(x + 6)(x - 2) = \underline{$
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31. $(x - 9)(x + 2) = \underline{$
32. $(x - 5)(x + 1) = \underline{$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

25.
$$(x + 3)(x + 5) = \underline{x^2 + 8x + 15}$$

 $A = 3$ $B = 5$ $A + B = 8$ $AB = 15$
26. $(x + 2)(x + 7) = \underline{x^2 + 9x + 14}$
 $A = 2$ $B = 7$ $A + B = 9$ $AB = 14$
27. $(x - 4)(x - 3) = \underline{x^2}$
 $A = -4$
28. $(x - 5)(x - 6) = \underline{x^2 + 9x + 14}$
29. $(x + 6)(x - 2) = \underline{x^2}$
30. $(x + 7)(x - 5) = \underline{x^2 + 9x + 14}$
31. $(x - 9)(x + 2) = \underline{x^2 + 9x + 14}$
32. $(x - 5)(x + 1) = \underline{x^2 + 9x + 14}$

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 $A = 3 B = 5 A + B = 8 AB = 15$
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 $A = 2 B = 7 A + B = 9 AB = 14$
27. $(x - 4)(x - 3) = \underline{x^2}$
 $A = -4 B = -3$
29. $(x + 6)(x - 2) = \underline{\qquad}$
30. $(x + 7)(x - 5) = \underline{\qquad}$
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$$(x + 3)(x + 5) = \underline{x^2 + 8x + 15}$$

 $A = 3 B = 5 A + B = 8 AB = 15$
26. $(x + 2)(x + 7) = \underline{x^2 + 9x + 1}$
 $A = 2 B = 7 A + B = 9 AB = 1$
27. $(x - 4)(x - 3) = \underline{x^2}$
 $A = -4 B = -3 A + B = -7$
29. $(x + 6)(x - 2) = \underline{ 30. (x + 7)(x - 5) = \underline{ 30. (x + 7)(x - 5) = \underline{ 30. (x + 7)(x - 5) = \underline{ 30. (x - 5)(x + 1) = \underline{ 30. (x - 5)(x + 5)($

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 $A = 2 B = 7 A + B = 9 AB = 14$
27. $(x - 4)(x - 3) = \underline{x^2 - 7x}$
 $A = -4 B = -3 A + B = -7$
29. $(x + 6)(x - 2) = \underline{\qquad}$
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 $A = 2 B = 7 A + B = 9 AB = 14$
27. $(x - 4)(x - 3) = \underline{x^2 - 7x}$
 $A = -4 B = -3 A + B = -7 AB = 12$
28. $(x - 5)(x - 6) = \underline{ ...}$
29. $(x + 6)(x - 2) = \underline{ ...}$
30. $(x + 7)(x - 5) = \underline{ ...}$
31. $(x - 9)(x + 2) = \underline{ ...}$
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 $A = -4 B = -3 A + B = -7 AB = 12$
28. $(x - 5)(x - 6) = \underline{x^2}$
29. $(x + 6)(x - 2) = \underline{ 30. (x + 7)(x - 5) = \underline{ 32. (x - 5)(x + 1) = \underline{ 32. (x - 5)($

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 $A = -4 B = -3 A + B = -7 AB = 12$
29. $(x + 6)(x - 2) = \underline{ ...}$
30. $(x + 7)(x - 5) = \underline{ ...}$
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32. $(x - 5)(x + 1) = \underline{ ...}$

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26. $(x + 2)(x + 7) = \underline{x^2 + 9x + 14}$
 $A = 2 B = 7 A + B = 9 AB = 14$
27. $(x - 4)(x - 3) = \underline{x^2 - 7x + 12}$
 $A = -4 B = -3 A + B = -7 AB = 12$
28. $(x - 5)(x - 6) = \underline{x^2}$
 $A = -5 B = -6$
30. $(x + 7)(x - 5) = \underline{x^2 - 7x + 12}$
31. $(x - 9)(x + 2) = \underline{x^2 - 7x + 12}$
32. $(x - 5)(x + 1) = \underline{x^2 - 7x + 12}$

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27. $(x - 4)(x - 3) = \underline{x^2 - 7x + 12}$
 $A = -4 B = -3 A + B = -7 AB = 12$
28. $(x - 5)(x - 6) = \underline{x^2}$
 $A = -5 B = -6 A + B = -11$
30. $(x + 7)(x - 5) = \underline{x^2 - 7x + 12}$
31. $(x - 9)(x + 2) = \underline{x^2 - 7x + 12}$
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27. $(x - 4)(x - 3) = \underline{x^2 - 7x + 12}$
 $A = -4 B = -3 A + B = -7 AB = 12$
28. $(x - 5)(x - 6) = \underline{x^2 - 11x}$
 $A = -5 B = -6 A + B = -11$
30. $(x + 7)(x - 5) = \underline{$
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 $A = 2 B = 7 A + B = 9 AB = 14$
27. $(x - 4)(x - 3) = \underline{x^2 - 7x + 12}$
 $A = -4 B = -3 A + B = -7 AB = 12$
28. $(x - 5)(x - 6) = \underline{x^2 - 11x}$
 $A = -5 B = -6 A + B = -11 AB = 30$
30. $(x + 7)(x - 5) = \underline{$
31. $(x - 9)(x + 2) = \underline{$
32. $(x - 5)(x + 1) = \underline{$

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 $A = -4 B = -3 A + B = -7 AB = 12$
28. $(x - 5)(x - 6) = \underline{x^2 - 11x + 30}$
 $A = -5 B = -6 A + B = -11 AB = 30$
30. $(x + 7)(x - 5) = \underline{$
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 $A = -4 B = -3 A + B = -7 AB = 12$
28. $(x - 5)(x - 6) = \underline{x^2 - 11x + 30}$
 $A = -5 B = -6 A + B = -11 AB = 30$
29. $(x + 6)(x - 2) = \underline{ 30. (x + 7)(x - 5) = \underline{ 30. (x + 7)(x - 5) = \underline{ 30. (x + 7)(x - 5) = \underline{ 30. (x - 5)(x + 1) = \underline{ 30. (x - 5)($

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27. $(x - 4)(x - 3) = \underline{x^2 - 7x + 12}$
 $A = -4 B = -3 A + B = -7 AB = 12$
28. $(x - 5)(x - 6) = \underline{x^2 - 11x + 30}$
 $A = -5 B = -6 A + B = -11 AB = 30$
30. $(x + 7)(x - 5) = \underline{$
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 $A = -4 B = -3 A + B = -7 AB = 12$
28. $(x - 5)(x - 6) = \underline{x^2 - 11x + 30}$
 $A = -5 B = -6 A + B = -11 AB = 30$
29. $(x + 6)(x - 2) = \underline{x^2}$
30. $(x + 7)(x - 5) = \underline{x^2 - 11x + 30}$
31. $(x - 9)(x + 2) = \underline{x^2}$
32. $(x - 5)(x + 1) = \underline{x^2 - 11x + 30}$

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 $A = -4 B = -3 A + B = -7 AB = 12$
28. $(x - 5)(x - 6) = \underline{x^2 - 11x + 30}$
 $A = -5 B = -6 A + B = -11 AB = 30$
30. $(x + 7)(x - 5) = \underline{x^2 - 11x + 30}$
 $A = -5 B = -6 A + B = -11 AB = 30$
31. $(x - 9)(x + 2) = \underline{x^2}$
32. $(x - 5)(x + 1) = \underline{x^2 - 11x + 30}$

S()

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

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28. $(x - 5)(x - 6) = \underline{x^2 - 11x + 30}$
 $A = -5 B = -6 A + B = -11 AB = 30$
30. $(x + 7)(x - 5) = \underline{x^2 - 11x + 30}$
 $A = -5 B = -6 A + B = -11 AB = 30$
30. $(x + 7)(x - 5) = \underline{x^2 - 11x + 30}$
 $A = -5 B = -6 A + B = -11 AB = 30$
31. $(x - 9)(x + 2) = \underline{x^2 - 32}$
32. $(x - 5)(x + 1) = \underline{x^2 - 11x + 30}$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

25.
$$(x + 3)(x + 5) = \underline{x^2 + 8x + 15}$$

 $A = 3 B = 5 A + B = 8 AB = 15$
26. $(x + 2)(x + 7) = \underline{x^2 + 9x + 14}$
 $A = 2 B = 7 A + B = 9 AB = 14$
27. $(x - 4)(x - 3) = \underline{x^2 - 7x + 12}$
 $A = -4 B = -3 A + B = -7 AB = 12$
28. $(x - 5)(x - 6) = \underline{x^2 - 11x + 30}$
 $A = -5 B = -6 A + B = -11 AB = 30$
29. $(x + 6)(x - 2) = \underline{x^2}$
 $A = 6 B = -2 A + B = 4$
30. $(x + 7)(x - 5) = \underline{x^2 - 11x + 30}$
30. $(x + 7)(x - 5) = \underline{x^2 - 11x + 30}$
31. $(x - 9)(x + 2) = \underline{x^2 - 3x + 12}$
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30. $(x + 7)(x - 5) = \underline{x^2 + 4x}$
 $A = 6 B = -2 A + B = 4$
31. $(x - 9)(x + 2) = \underline{x^2 + 4x}$
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 $A = 6 B = -2 A + B = 4 AB = -12$
30. $(x + 7)(x - 5) = \underline{x^2}$
 $A = 7$
31. $(x - 9)(x + 2) = \underline{ ...}$
32. $(x - 5)(x + 1) = \underline{ ...}$

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29. $(x + 6)(x - 2) = \underline{x^2 + 4x - 12}$
 $A = 6 B = -2 A + B = 4 AB = -12$
30. $(x + 7)(x - 5) = \underline{x^2}$
 $A = 7 B = -5$
31. $(x - 9)(x + 2) = \underline{ 20}$
32. $(x - 5)(x + 1) = \underline{ 20}$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

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29. $(x + 6)(x - 2) = \underline{x^2 + 4x - 12}$
 $A = 6 B = -2 A + B = 4 AB = -12$
30. $(x + 7)(x - 5) = \underline{x^2 + 2x}$
 $A = 7 B = -5 A + B = 2 AB = -35$
31. $(x - 9)(x + 2) = \underline{\qquad}$
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 $A = 6 B = -2 A + B = 4 AB = -12$
30. $(x + 7)(x - 5) = \underline{x^2 + 2x - 35}$
 $A = 7 B = -5 A + B = 2 AB = -35$
31. $(x - 9)(x + 2) = \underline{x^2}$
 $A = -9$
32. $(x - 5)(x + 1) = \underline{x^2 + 9x + 14}$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

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31. $(x - 9)(x + 2) = \underline{x^2}$
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 $A = -9 B = 2 A + B = -7$
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30. $(x + 7)(x - 5) = \underline{x^2 + 2x - 35}$
 $A = 7 B = -5 A + B = 2 AB = -35$
31. $(x - 9)(x + 2) = \underline{x^2 - 7x}$
 $A = -9 B = 2 A + B = -7 AB = -18$
32. $(x - 5)(x + 1) = \underline{x^2 - 7x}$
33. $(x - 5)(x + 1) = \underline{x^2 - 7x}$
34. $(x - 9)(x + 2) = \underline{x^2 - 7x}$
A = -9 B = 2 A + B = -7 AB = -18

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 $A = 7 B = -5 A + B = 2 AB = -35$
31. $(x - 9)(x + 2) = \underline{x^2 - 7x - 18}$
 $A = -9 B = 2 A + B = -7 AB = -18$
32. $(x - 5)(x + 1) = \underline{x^2 - 35}$

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30. $(x + 7)(x - 5) = \underline{x^2 + 2x - 35}$
 $A = 7 B = -5 A + B = 2 AB = -35$
31. $(x - 9)(x + 2) = \underline{x^2 - 7x - 18}$
 $A = -9 B = 2 A + B = -7 AB = -18$
32. $(x - 5)(x + 1) = \underline{x^2}$

 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Perform the indicated operations.

25.
$$(x + 3)(x + 5) = \underline{x^2 + 8x + 15}$$

 $A = 3 B = 5 A + B = 8 AB = 15$
26. $(x + 2)(x + 7) = \underline{x^2 + 9x + 14}$
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This pattern can be used to multiply two binomials of this type. Notice that the first term is x^2 . The coefficient of the 'middle term', the x-term, is the <u>sum of A and B</u>. Finally, notice that the last term is the <u>product of A and B</u>.

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A + B = -4 $AB = 3$ $A = -1$ $B = -3$	A + B = -15 $AB = 56$ $A = -7$ $B = -8$
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A + B = -4 $AB = -12$ $A = -6$ $B = 2$	$\mathbf{A} + \mathbf{B} = -1$

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Factor each of the following.

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 $\mathbf{x}^2 + \mathbf{(A + B)}\mathbf{x} + \mathbf{AB} = (\mathbf{x} + \mathbf{A})(\mathbf{x} + \mathbf{B})$

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 $\mathbf{x}^2 + \mathbf{(A + B)}\mathbf{x} + \mathbf{AB} = (\mathbf{x} + \mathbf{A})(\mathbf{x} + \mathbf{B})$

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 $(x + A)(x + B) = x^{2} + (A + B)x + AB$

Factor each of the following.

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$$x^2 + 6x - 27 = (x+9)(x-3)$$
 40. $x^2 + 7x - 18 = (x-2)(x+9)$
 $A + B = 6$
 $AB = -27$
 $A = 9$
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 41. $x^2 + 10x + 25 = (x+5)(x+5)$
 $A + B = 7$
 $AB = -18$
 $A = -2$
 $B = 9$

 41. $x^2 + 10x + 25 = (x+5)(x+5)$
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 $B = 5$
 $A = -2$
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Use the factoring method to solve each of the following equations.

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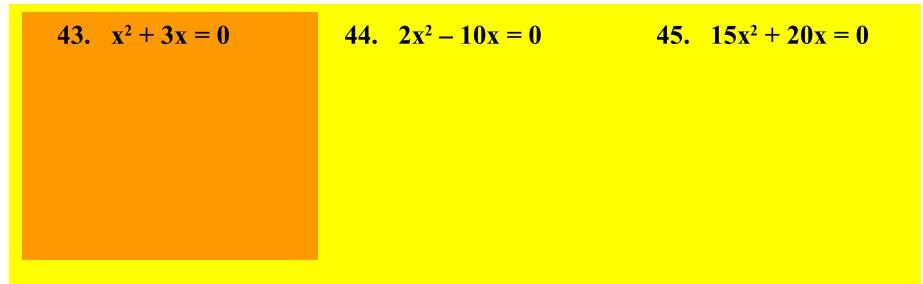
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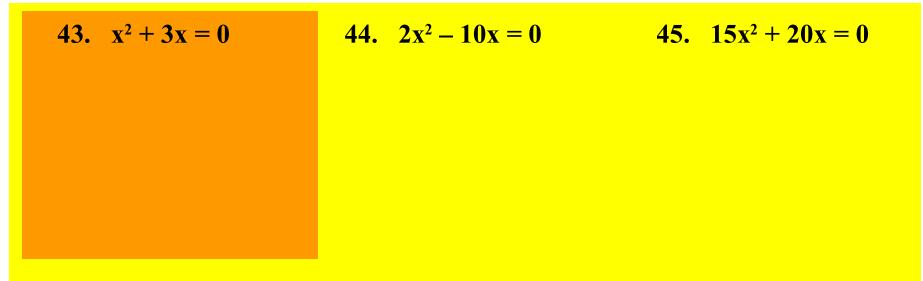
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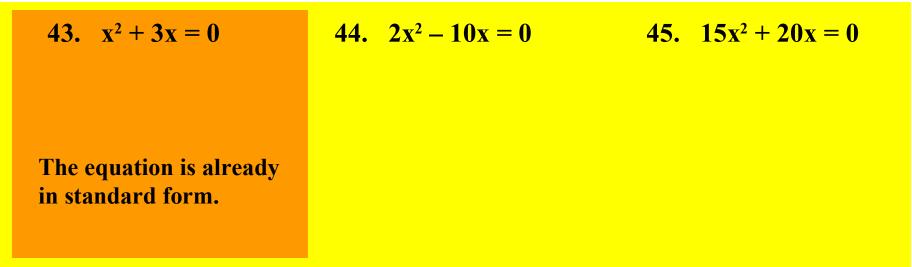
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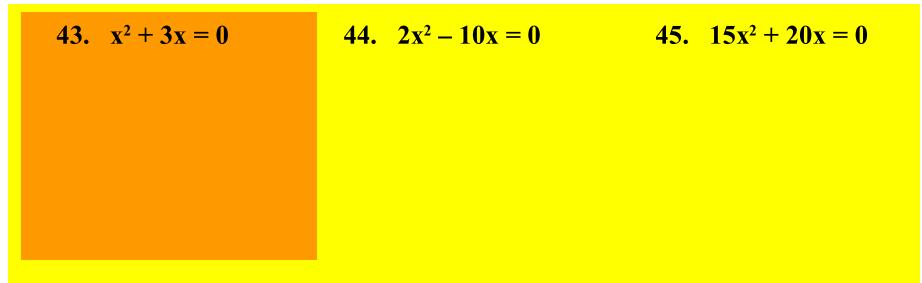
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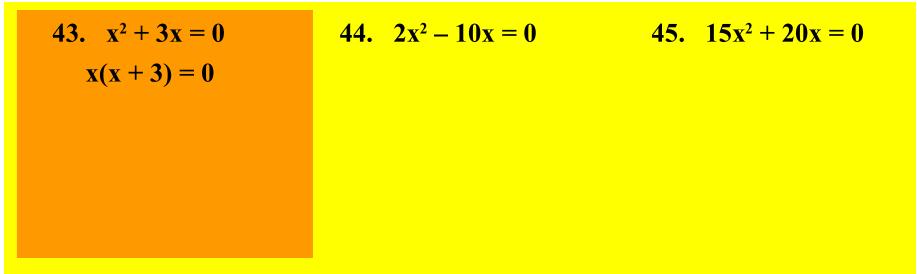
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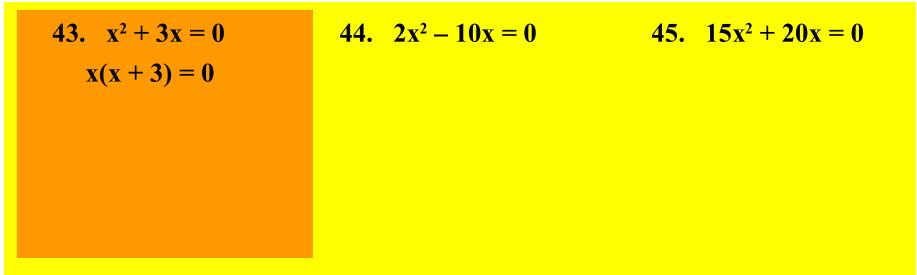
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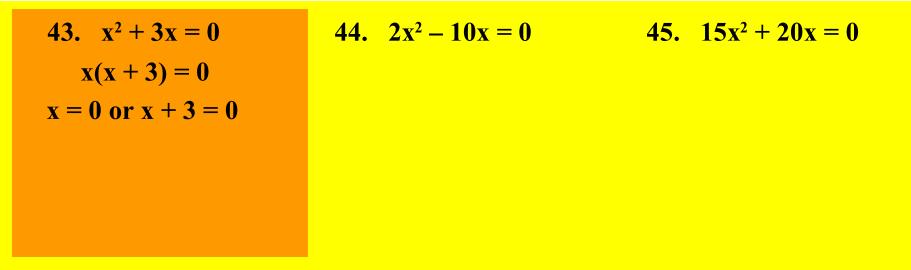
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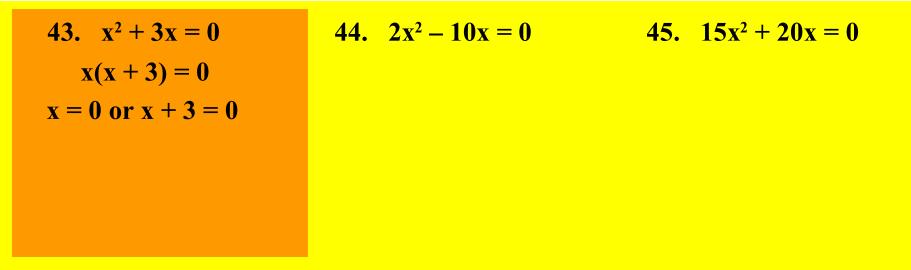
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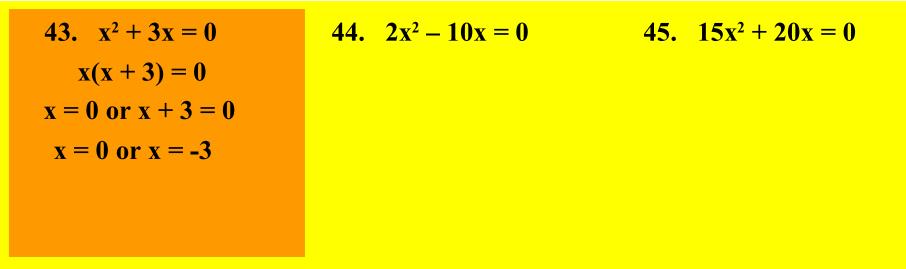
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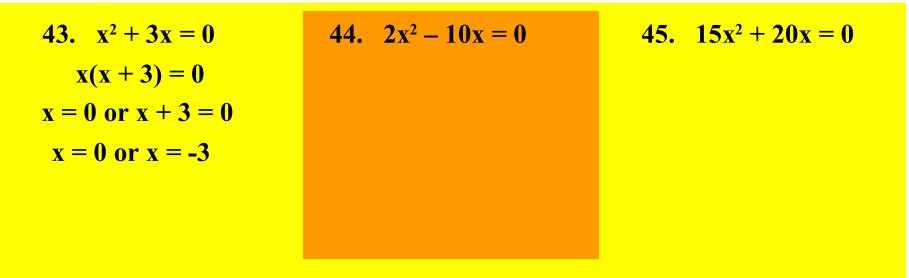
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Use the factoring method to solve each of the following equations.

43. $x^2 + 3x = 0$ x(x + 3) = 0 x = 0 or x + 3 = 0 x = 0 or x = -344. $2x^2 - 10x = 0$ 45. $15x^2 + 20x = 0$ 45. x = 0

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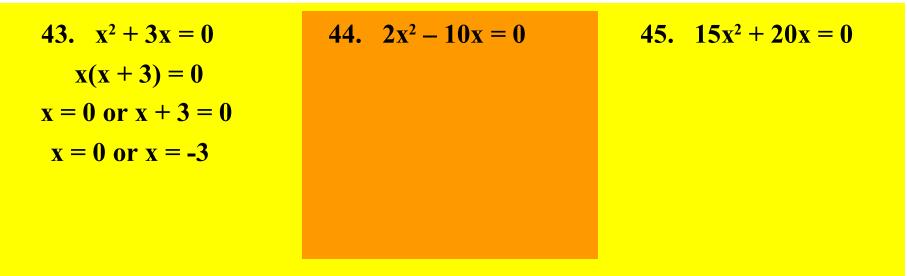


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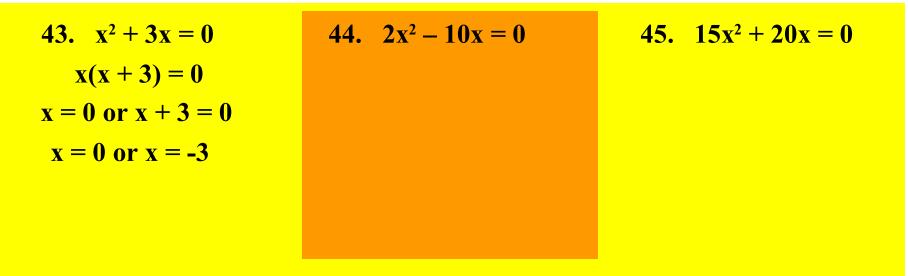
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x = 0 or x + 3 = 0		
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x = 0 or x + 3 = 0	2x = 0 or x - 5 = 0	
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x = 0 or x = -3	$\mathbf{x} = 0 \text{ or } \mathbf{x} = 5$	

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$\mathbf{x}(\mathbf{x}+3)=0$	$2\mathbf{x}(\mathbf{x}-5)=0$	
x = 0 or x + 3 = 0	2x = 0 or x - 5 = 0	
x = 0 or x = -3	x = 0 or x = 5	The equation is already in standard form.

Use the factoring method to solve each of the following equations.

$44. 2x^2 - 10x = 0$	4:
$2\mathbf{x}(\mathbf{x}-5)=0$	
2x = 0 or x - 5 = 0	
$\mathbf{x} = 0 \text{ or } \mathbf{x} = 5$	
	2x(x-5) = 0 2x = 0 or x - 5 = 0

45. $15x^2 + 20x = 0$

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x = 0 or x + 3 = 0	2x = 0 or x - 5 = 0
x = 0 or x = -3	$\mathbf{x} = 0 \text{ or } \mathbf{x} = 5$

45. $15x^2 + 20x = 0$ 5x(3x + 4) = 0

Step 1: Write the equation in <u>standard form</u>: $Ax^2 + Bx + C = 0$

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(4) = 0

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$\mathbf{x}(\mathbf{x}+3)=0$	$2\mathbf{x}(\mathbf{x}-5)=0$	5x(3x +
x = 0 or x + 3 = 0	2x = 0 or x - 5 = 0	
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x = 0 or x + 3 = 0	2x = 0 or x - 5 = 0	5x = 0 or 3x + 4 = 0
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x = 0 or x + 3 = 0	2x = 0 or x - 5 = 0	5x = 0 or $3x + 4 = 0$
x = 0 or x = -3	$\mathbf{x} = 0 \text{ or } \mathbf{x} = 5$	$3\mathbf{x} = -4$

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x = 0 or x + 3 = 0	2x = 0 or x - 5 = 0	5x = 0 or $3x + 4 = 0$
x = 0 or x = -3	x = 0 or x = 5	3x = -4
		$x = 0 \text{ or } x = \frac{-4}{3}$

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$43. \ x^2 + 3x = 0$	$44. 2x^2 - 10x = 0$	$45. 15x^2 + 20x = 0$
$\mathbf{x}(\mathbf{x}+3)=0$	$2\mathbf{x}(\mathbf{x}-5)=0$	$5\mathbf{x}(3\mathbf{x}+4)=0$
x = 0 or x + 3 = 0	2x = 0 or x - 5 = 0	5x = 0 or 3x + 4 = 0
x = 0 or x = -3	$\mathbf{x} = 0 \text{ or } \mathbf{x} = 5$	$3\mathbf{x} = -4$
		$x = 0$ or $x = \frac{-4}{3}$

Use the factoring method to solve each of the following equations.

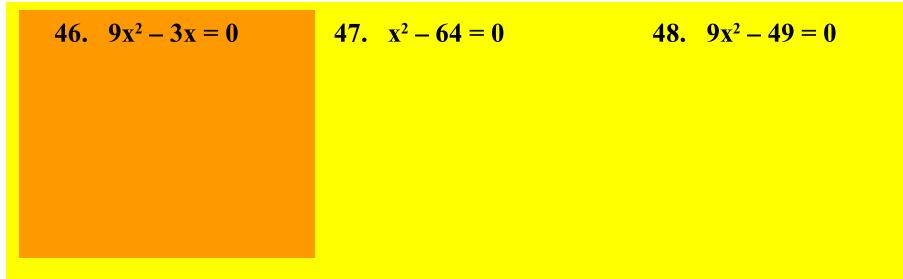
46. $9x^2 - 3x = 0$ 47. $x^2 - 64 = 0$ 48. $9x^2 - 49 = 0$

Step 1: Write the equation in <u>standard form</u>: $Ax^2 + Bx + C = 0$

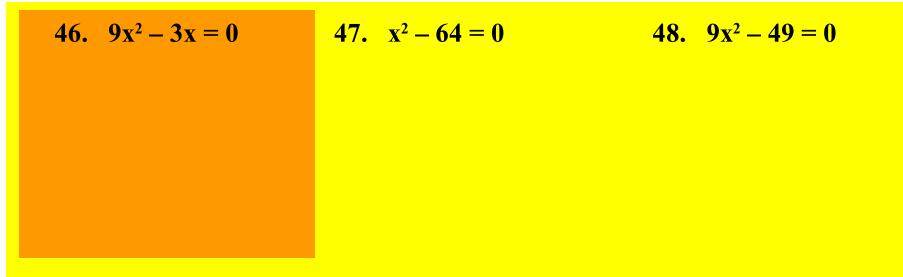
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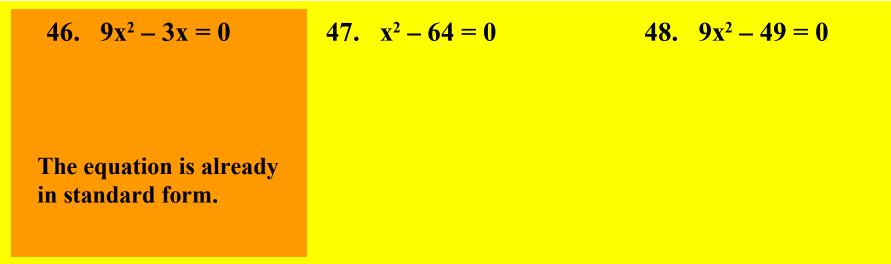
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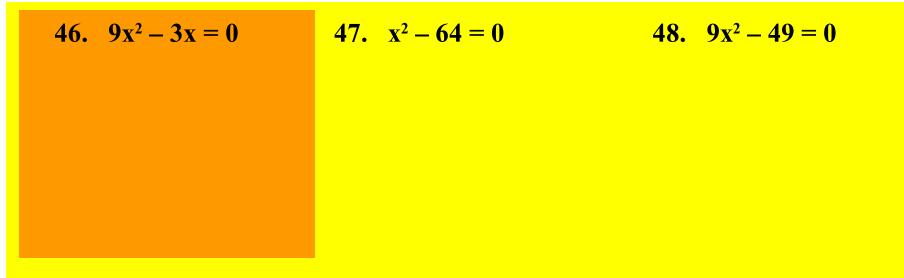
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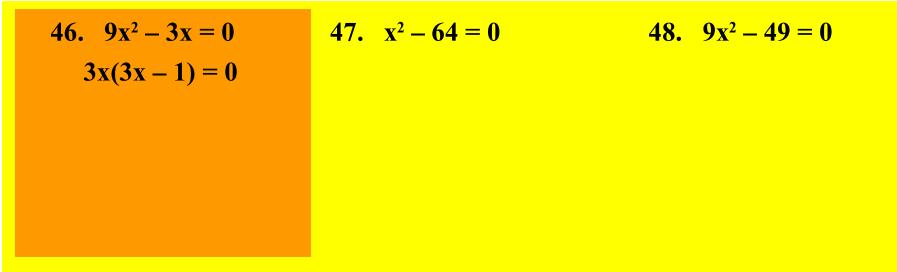


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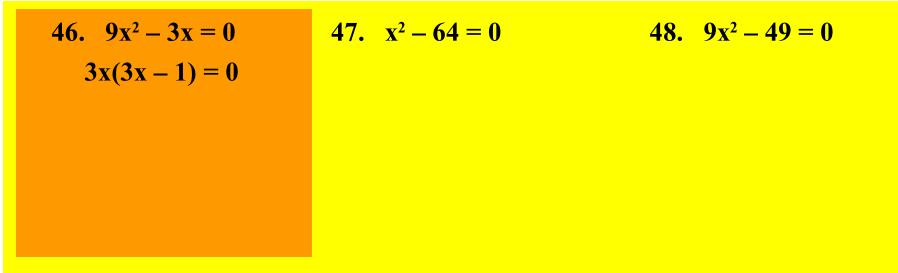
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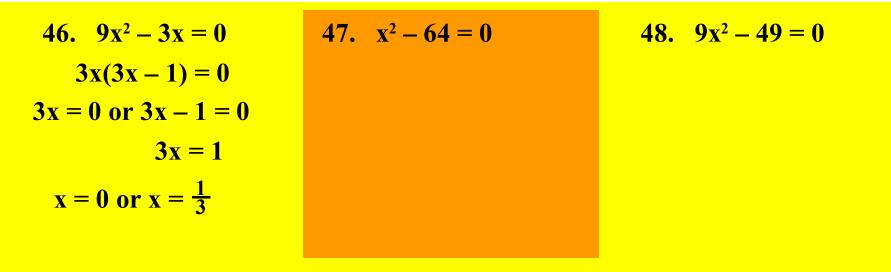
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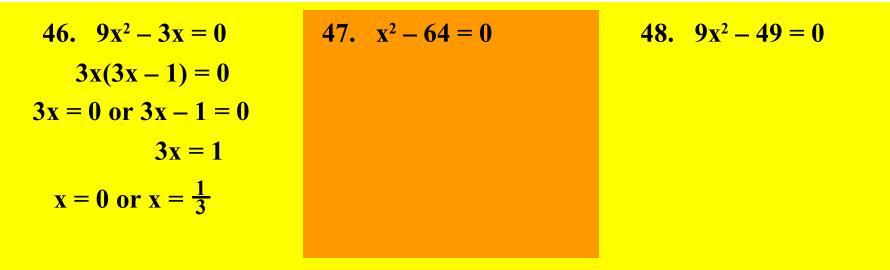


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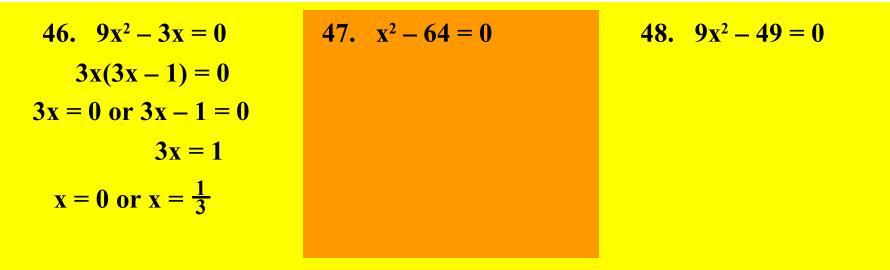
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$3\mathbf{x} = 1$	The equation is already	
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$3\mathbf{x} = 1$	x = -8 or x = 8
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3x = 0 or 3x - 1 = 0	x + 8 = 0 or $x - 8 = 0$
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$x = 0 \text{ or } x = \frac{1}{3}$	

 $48. \ 9x^2 - 49 = 0$

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$3\mathbf{x}(3\mathbf{x}-1)=0$	(x+8)(x-8)=0
3x = 0 or 3x - 1 = 0	x + 8 = 0 or $x - 8 = 0$
$3\mathbf{x} = 1$	x = -8 or x = 8
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 $48. \quad 9x^2 - 49 = 0$ (3x + 7)(3x - 7) = 0

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$3\mathbf{x}(3\mathbf{x}-1)=0$	(x+8)(x-8)=0	(3x+7)(3x-7) = 0
3x = 0 or 3x - 1 = 0	x + 8 = 0 or $x - 8 = 0$	3x + 7 = 0 or $3x - 7 = 0$
3x = 1	x = -8 or x = 8	
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(Factor the polynomial $Ax^2 + Bx + C$.)

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3x = 0 or 3x - 1 = 0	x + 8 = 0 or x - 8 = 0	3x + 7 = 0 or $3x - 7 = 0$
3x = 1	x = -8 or x = 8	3x = -7 or $3x = 7$
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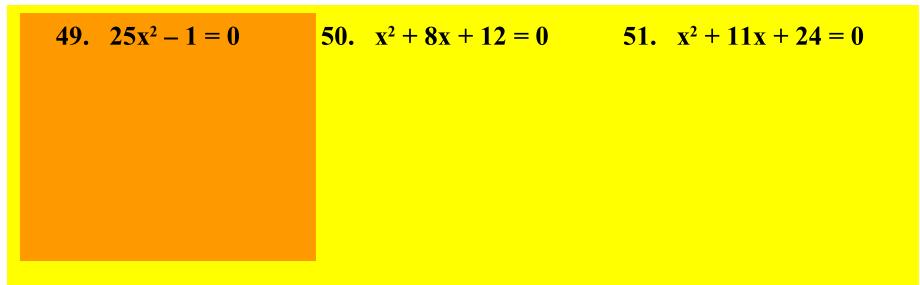
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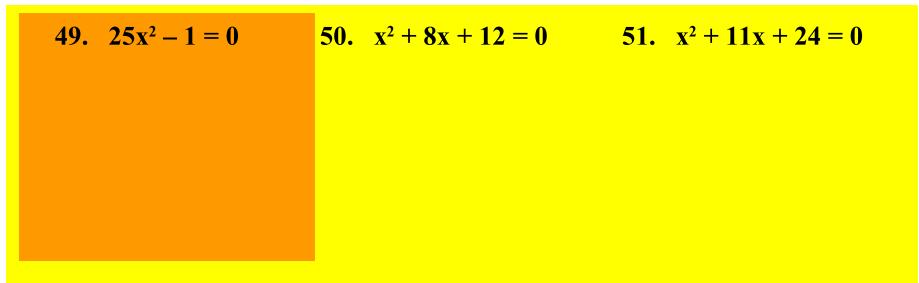
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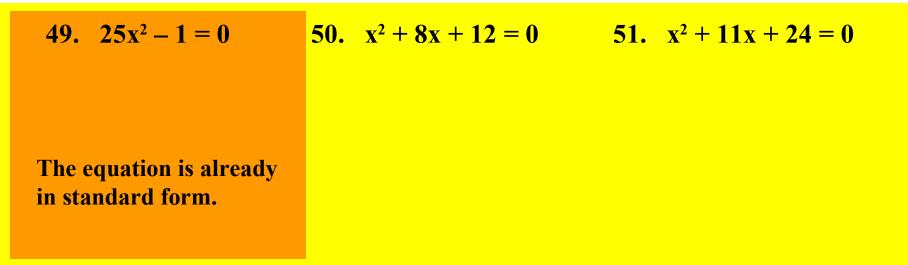
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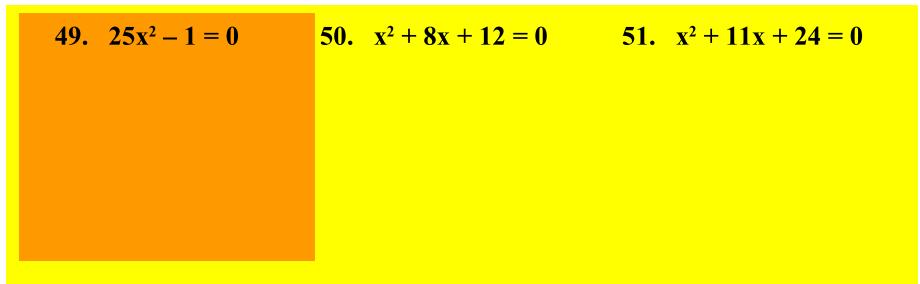
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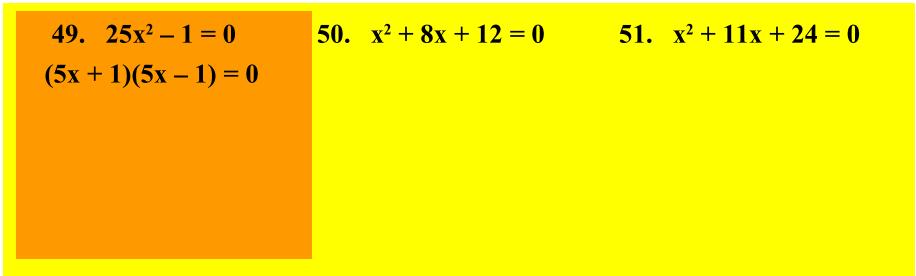


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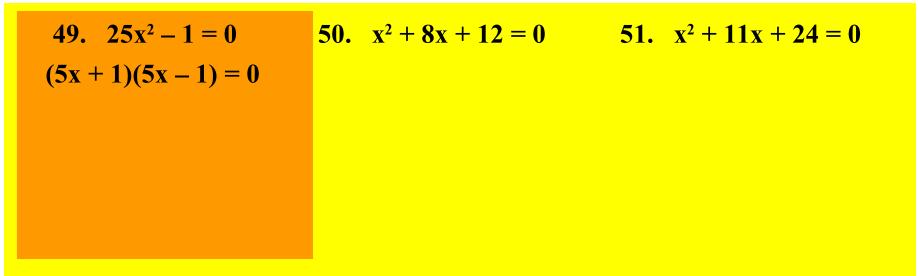
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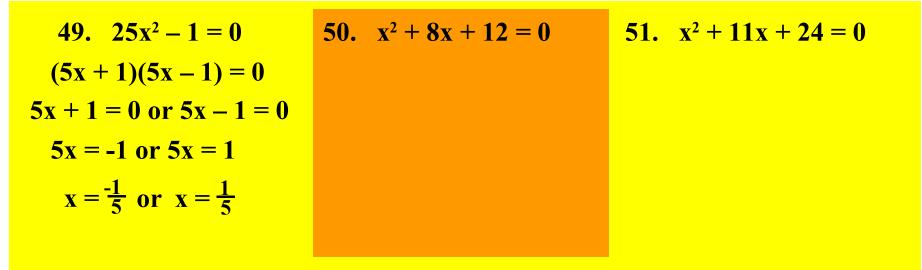
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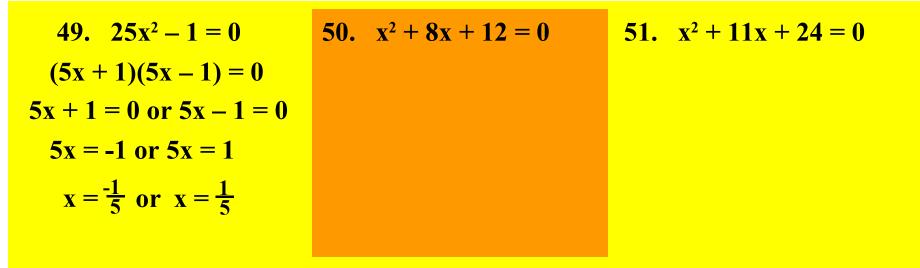


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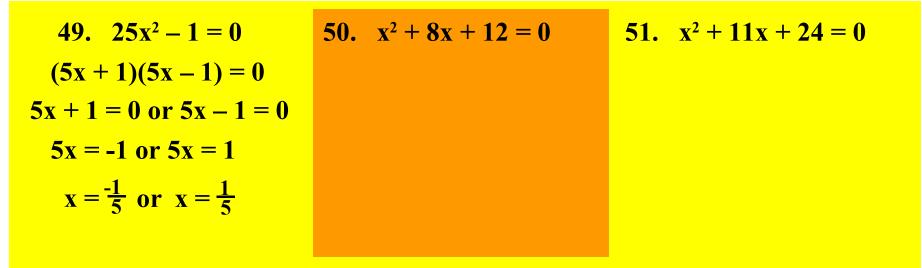
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5x + 1 = 0 or $5x - 1 = 0$	x + 2 = 0 or $x + 6 = 0$	
5x = -1 or $5x = 1$		
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(5x+1)(5x-1)=0	(x+2)(x+6) = 0	
5x + 1 = 0 or $5x - 1 = 0$	x + 2 = 0 or $x + 6 = 0$	
5x = -1 or $5x = 1$		
$x = \frac{-1}{5}$ or $x = \frac{1}{5}$		

Step 1: Write the equation in <u>standard form</u>: $Ax^2 + Bx + C = 0$

Step 2: Write the equation in <u>factored form</u>. (Factor the polynomial Ax² + Bx + C.)

Step 3: Apply the 'zero property of multiplication. If PQ = 0, then P = 0 or Q = 0.

Use the factoring method to solve each of the following equations.

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5x + 1 = 0 or $5x - 1 = 0$	x + 2 = 0 or $x + 6 = 0$	
5x = -1 or $5x = 1$	x = -2 or $x = -6$	
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Use the factoring method to solve each of the following equations.

49. $25x^2 - 1 = 0$ (5x + 1)(5x - 1) = 0 5x + 1 = 0 or 5x - 1 = 0 5x = -1 or 5x = 1 $x = \frac{-1}{5} \text{ or } x = \frac{1}{5}$ 50. $x^2 + 8x + 12 = 0$ (x + 2)(x + 6) = 0 x + 2 = 0 or x + 6 = 0x = -2 or x = -6

Use the factoring method to solve each of the following equations.

$49. 25x^2 - 1 = 0$	50. $x^2 + 8x + 12 = 0$	51. $x^2 + 11x + 24 = 0$
(5x+1)(5x-1)=0	(x+2)(x+6) = 0	
5x + 1 = 0 or $5x - 1 = 0$	x + 2 = 0 or $x + 6 = 0$	
5x = -1 or 5x = 1	x = -2 or $x = -6$	
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(5x+1)(5x-1)=0	(x+2)(x+6) = 0	
5x + 1 = 0 or $5x - 1 = 0$	x + 2 = 0 or $x + 6 = 0$	
5x = -1 or 5x = 1	x = -2 or x = -6	
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5x + 1 = 0 or $5x - 1 = 0$	x + 2 = 0 or $x + 6 = 0$	
5x = -1 or $5x = 1$	x = -2 or $x = -6$	The equation is already
$x = \frac{-1}{5}$ or $x = \frac{1}{5}$		in standard form.

Use the factoring method to solve each of the following equations.

$49. 25x^2 - 1 = 0$	50. $x^2 + 8x + 12 = 0$	51. $x^2 + 11x + 24 = 0$
(5x+1)(5x-1)=0	(x+2)(x+6) = 0	
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5x = -1 or 5x = 1	x = -2 or $x = -6$	
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(5x+1)(5x-1)=0	(x+2)(x+6) = 0	(x+3)(x+8) = 0
5x + 1 = 0 or $5x - 1 = 0$	x + 2 = 0 or $x + 6 = 0$	
5x = -1 or 5x = 1	x = -2 or x = -6	
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Use the factoring method to solve each of the following equations.

= 0

0

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5x + 1 = 0 or $5x - 1 = 0$	x + 2 = 0 or $x + 6 = 0$	x + 3 = 0 or $x + 8 = 0$
5x = -1 or $5x = 1$	x = -2 or x = -6	
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Step 1: Write the equation in <u>standard form</u>: Ax² + Bx + C = 0
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5x + 1 = 0 or $5x - 1 = 0$	x + 2 = 0 or $x + 6 = 0$	x + 3 = 0 or $x + 8 = 0$
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$x = \frac{-1}{5}$ or $x = \frac{1}{5}$		

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5x + 1 = 0 or $5x - 1 = 0$	x + 2 = 0 or $x + 6 = 0$	x + 3 = 0 or $x + 8 = 0$
5x = -1 or 5x = 1	x = -2 or $x = -6$	x = -3 or x = -8
$x = \frac{-1}{5}$ or $x = \frac{1}{5}$		

Use the factoring method to solve each of the following equations.

$49. 25x^2 - 1 = 0$	50. $x^2 + 8x + 12 = 0$	51. $x^2 + 11x + 24 = 0$
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5x = -1 or $5x = 1$	x = -2 or x = -6	x = -3 or x = -8
$x = \frac{-1}{5}$ or $x = \frac{1}{5}$		

Use the factoring method to solve each of the following equations.

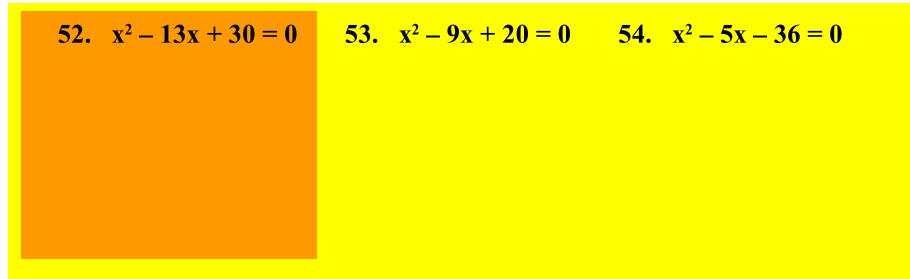
52. $x^2 - 13x + 30 = 0$ 53. $x^2 - 9x + 20 = 0$ 54. $x^2 - 5x - 36 = 0$

Step 1: Write the equation in <u>standard form</u>: $Ax^2 + Bx + C = 0$

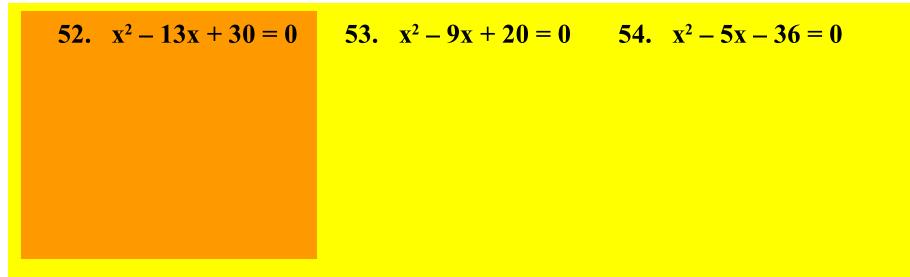
Step 2: Write the equation in <u>factored form</u>. (Factor the polynomial Ax² + Bx + C.)

Step 3: Apply the 'zero property of multiplication. If PQ = 0, then P = 0 or Q = 0.

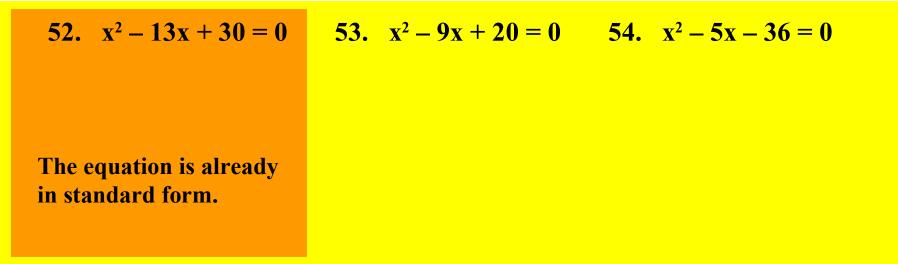
Use the factoring method to solve each of the following equations.



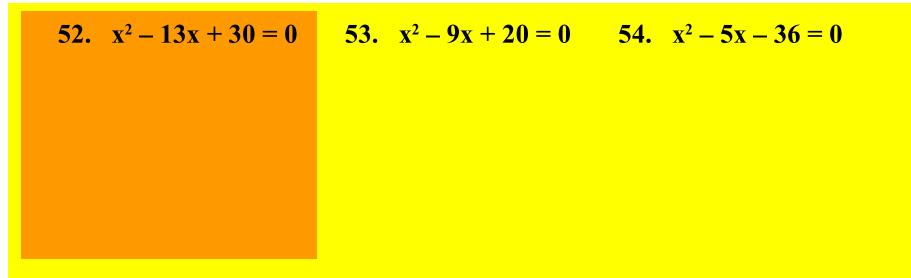
Use the factoring method to solve each of the following equations.



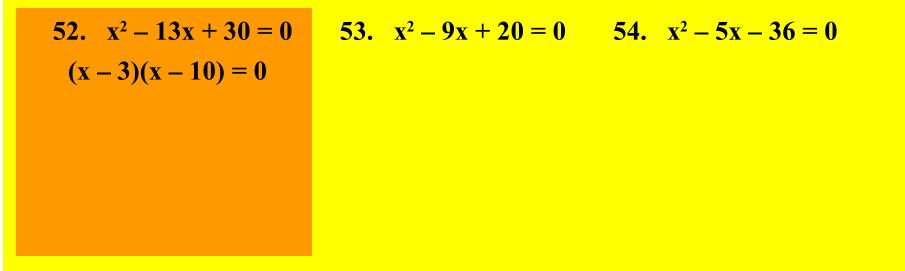
Use the factoring method to solve each of the following equations.



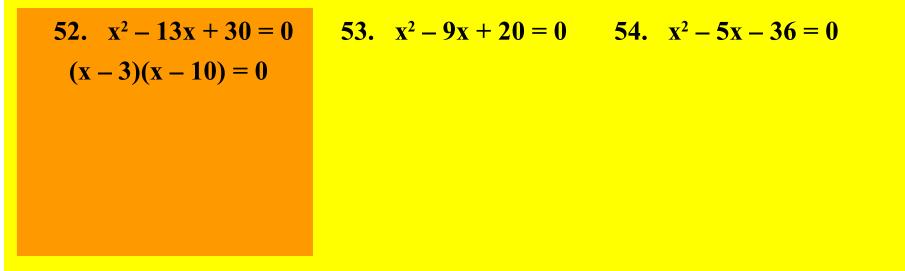
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52. $x^{2} - 13x + 30 = 0$ (x - 3)(x - 10) = 0 x - 3 = 0 or x - 10 = 053. $x^{2} - 9x + 20 = 0$ 54. $x^{2} - 5x - 36 = 0$

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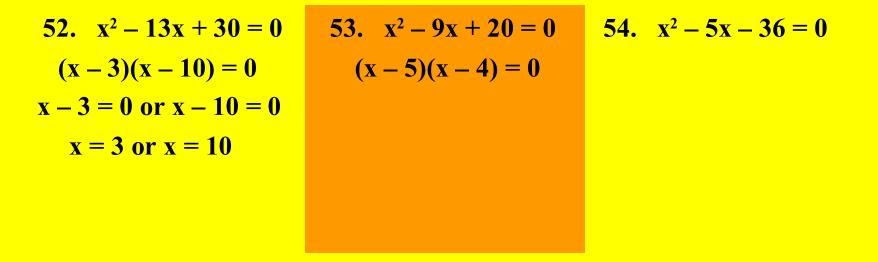
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Use the factoring method to solve each of the following equations.

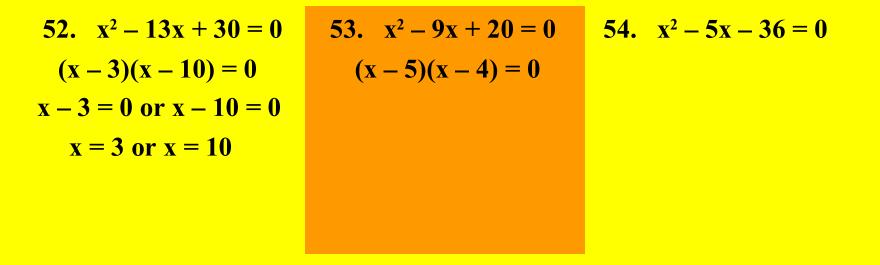


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Use the factoring method to solve each of the following equations.



Use the factoring method to solve each of the following equations.

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(x-3)(x-10) = 0	$(\mathbf{x}-5)(\mathbf{x}-4)=0$	
x - 3 = 0 or $x - 10 = 0$	x - 5 = 0 or $x - 4 = 0$	
x = 3 or x = 10		

Use the factoring method to solve each of the following equations.

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x - 3 = 0 or $x - 10 = 0$	x - 5 = 0 or $x - 4 = 0$	
x = 3 or x = 10	$\mathbf{x} = 5 \text{ or } \mathbf{x} = 4$	

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Use the factoring method to solve each of the following equations.

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Use the factoring method to solve each of the following equations.

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x - 3 = 0 or $x - 10 = 0$	x - 5 = 0 or $x - 4 = 0$	x - 9 = 0 or $x + 4 = 0$
x = 3 or x = 10	$\mathbf{x} = 5 \text{ or } \mathbf{x} = 4$	

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x = 3 or x = 10	x = 5 or x = 4	

Step 1: Write the equation in <u>standard form</u>: Ax² + Bx + C = 0
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x = 3 or x = 10	$\mathbf{x} = 5 \text{ or } \mathbf{x} = 4$	x = 9 or $x = -4$

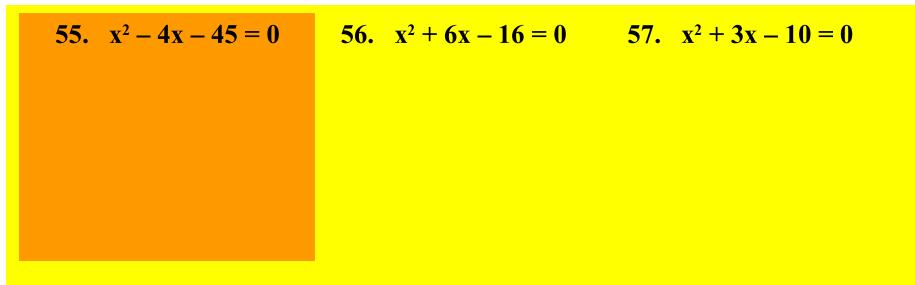
Use the factoring method to solve each of the following equations.

52. $x^2 - 13x + 30 = 0$ 53. $x^2 - 9x + 20 = 0$ 54. $x^2 - 5x - 36 = 0$ (x - 3)(x - 10) = 0(x - 5)(x - 4) = 0(x - 9)(x + 4) = 0x - 3 = 0 or x - 10 = 0x - 5 = 0 or x - 4 = 0x - 9 = 0 or x + 4 = 0x = 3 or x = 10x = 5 or x = 4x = 9 or x = -4

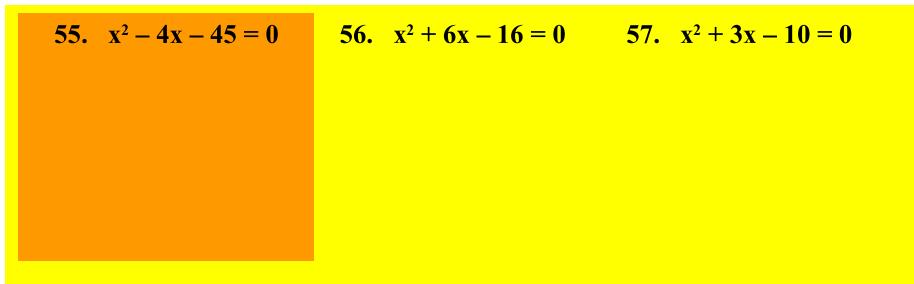
Use the factoring method to solve each of the following equations.

55. $x^2 - 4x - 45 = 0$ 56. $x^2 + 6x - 16 = 0$ 57. $x^2 + 3x - 10 = 0$ **Step 1:** Write the equation in <u>standard form</u>: $Ax^2 + Bx + C = 0$ **Step 2:** Write the equation in <u>factored form</u>. (Factor the polynomial $Ax^2 + Bx + C$.) **Step 3:** Apply the 'zero property of multiplication. If PQ = 0, then P = 0 or Q = 0. **Step 4:** Solve each equation.

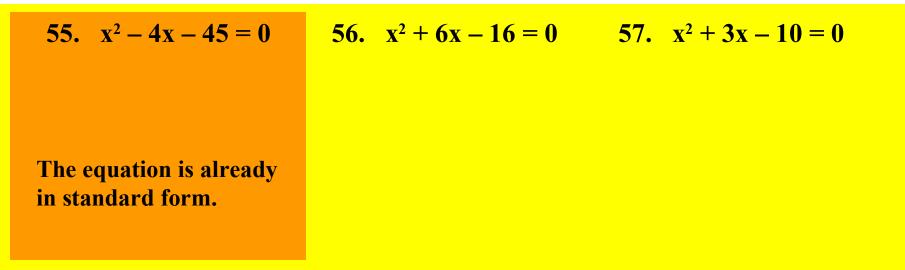
Use the factoring method to solve each of the following equations.



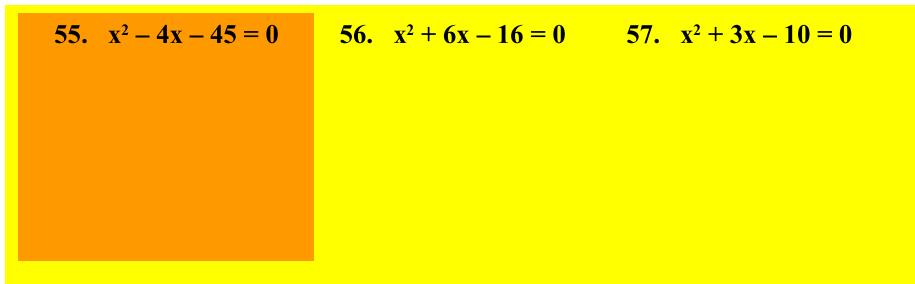
Use the factoring method to solve each of the following equations.



Use the factoring method to solve each of the following equations.

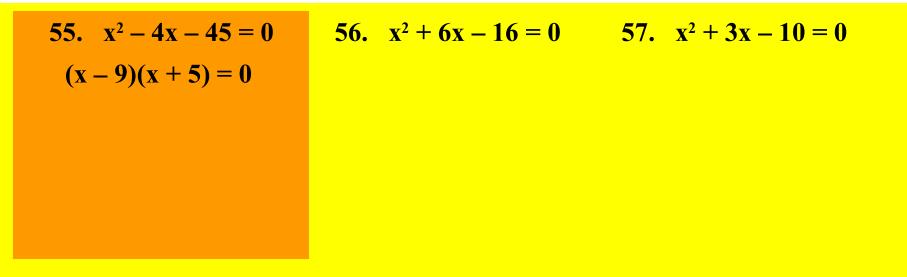


Use the factoring method to solve each of the following equations.

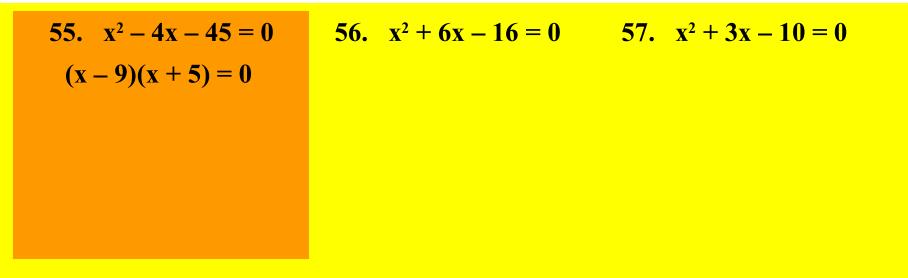


Step 1: Write the equation in <u>standard form</u>: Ax² + Bx + C = 0
Step 2: Write the equation in <u>factored form</u>.
(Factor the polynomial Ax² + Bx + C.)
Step 3: Apply the 'zero property of multiplication.
If PQ = 0, then P = 0 or Q = 0.
Step 4: Set the equation of the polynomial form of the polynomial form.

Use the factoring method to solve each of the following equations.



Use the factoring method to solve each of the following equations.



Use the factoring method to solve each of the following equations.

55. $x^2 - 4x - 45 = 0$ (x - 9)(x + 5) = 0 x - 9 = 0 or x + 5 = 056. $x^2 + 6x - 16 = 0$ 57. $x^2 + 3x - 10 = 0$

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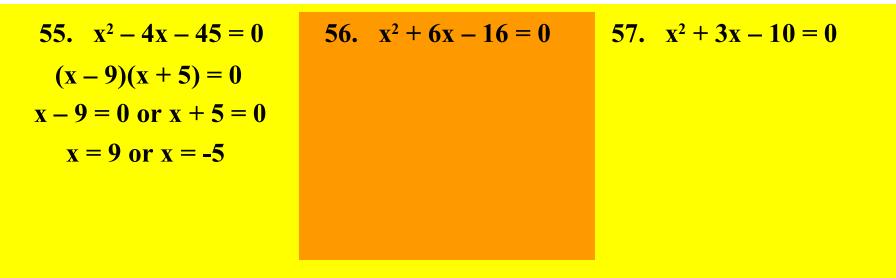
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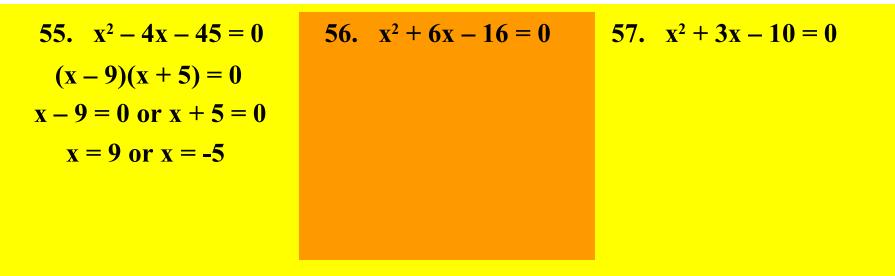


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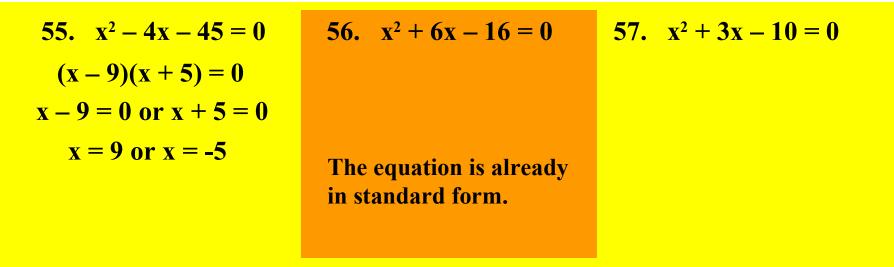


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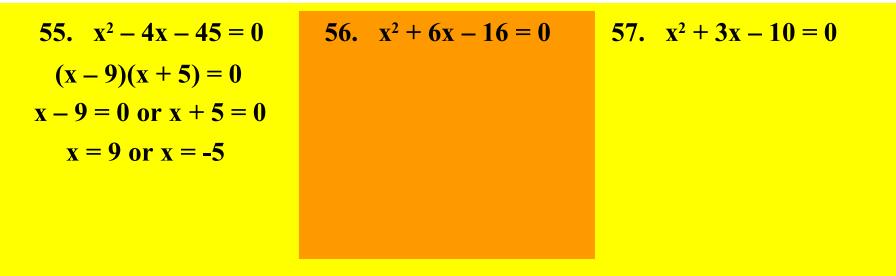
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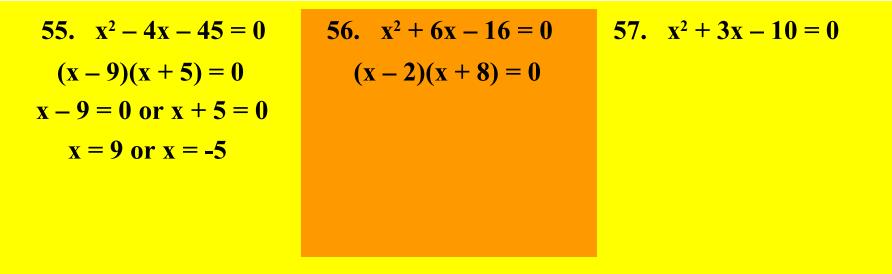


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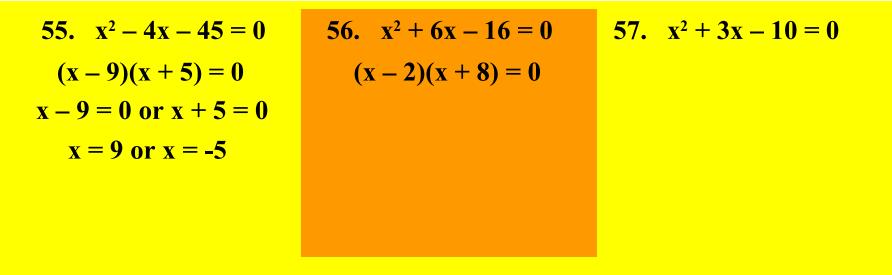


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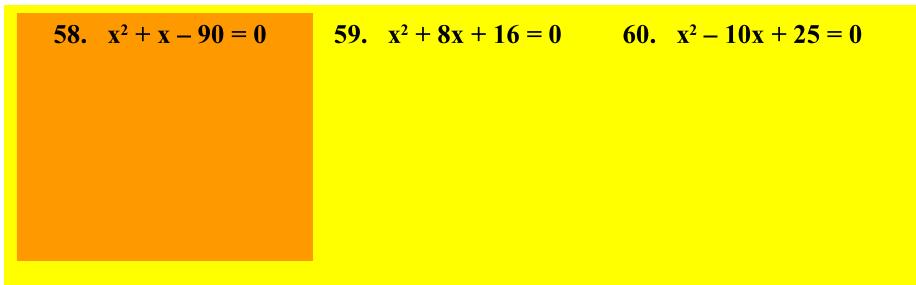
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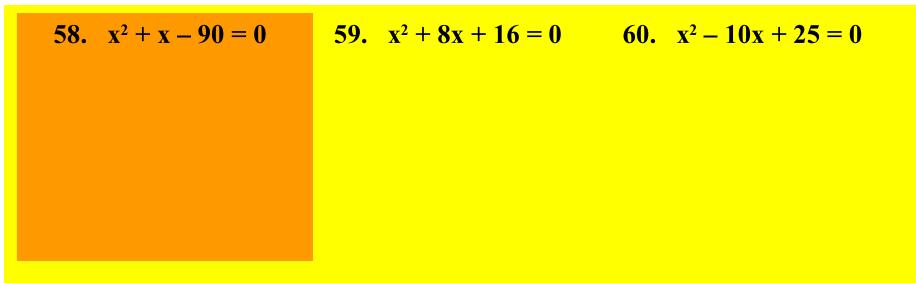
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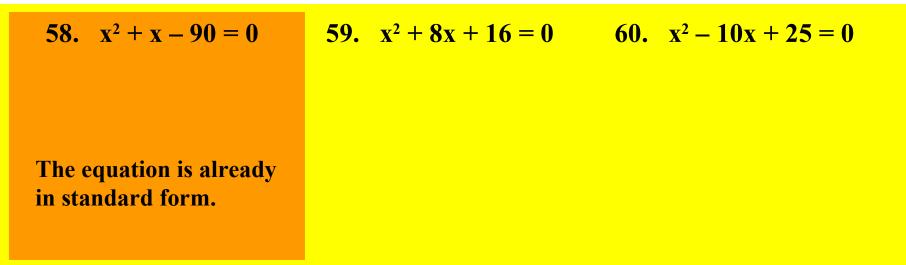
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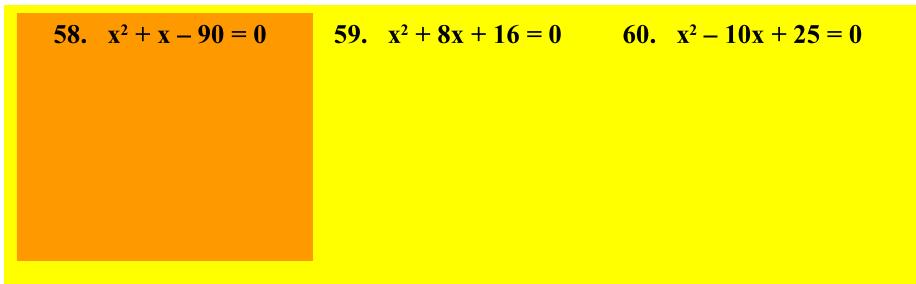
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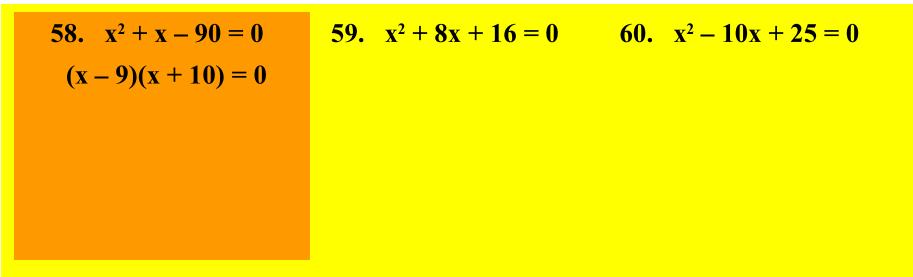


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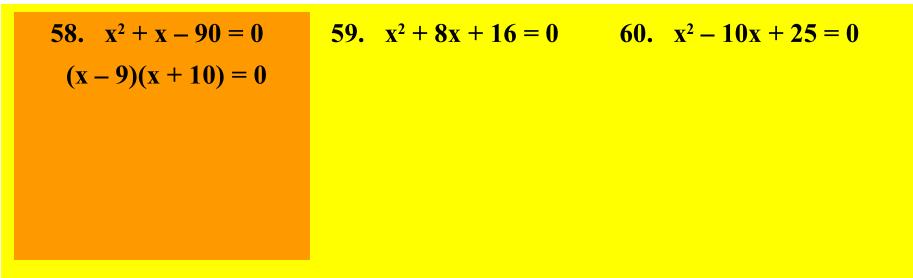


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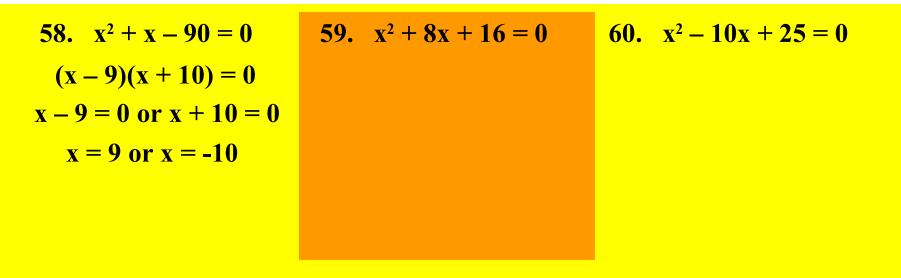
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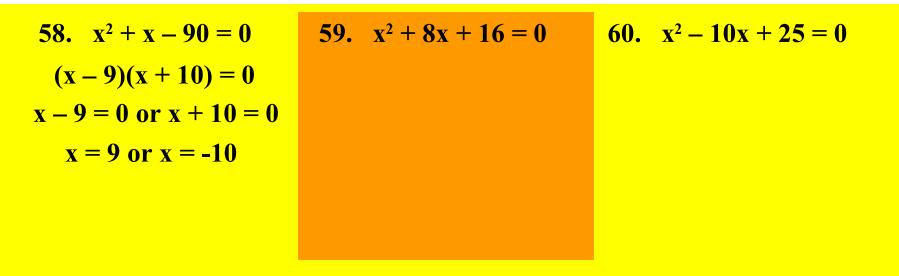


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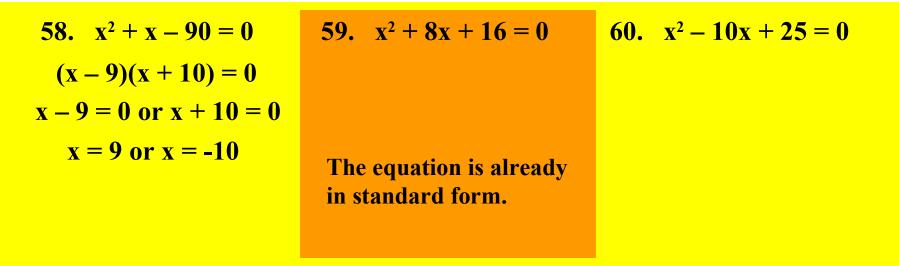


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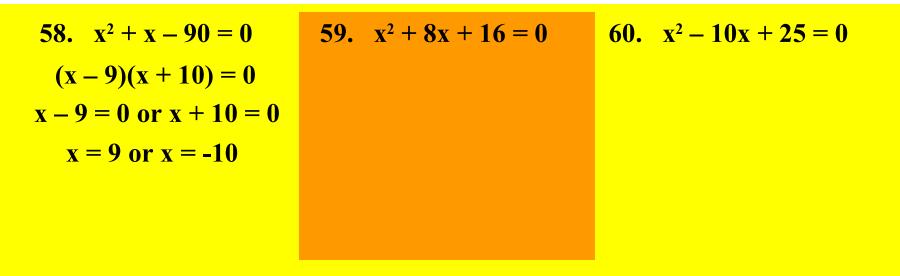
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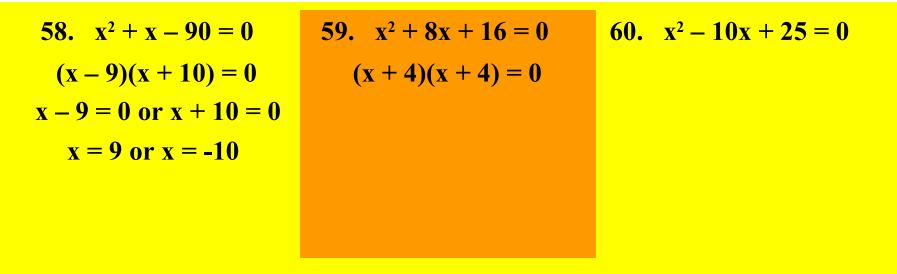


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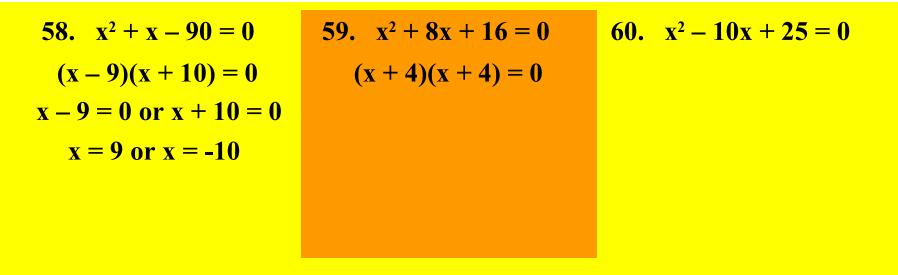


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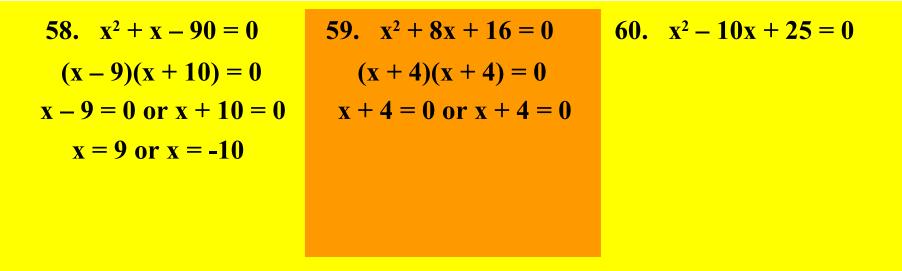
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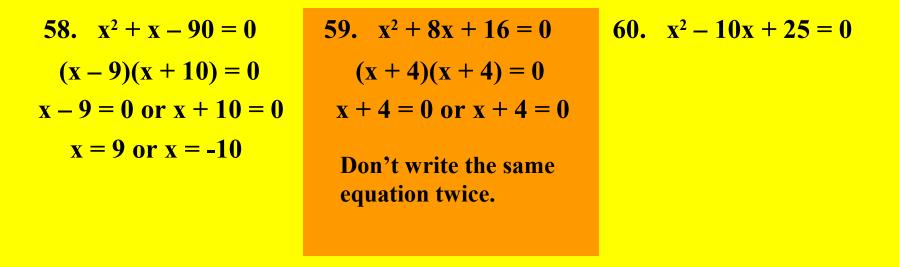


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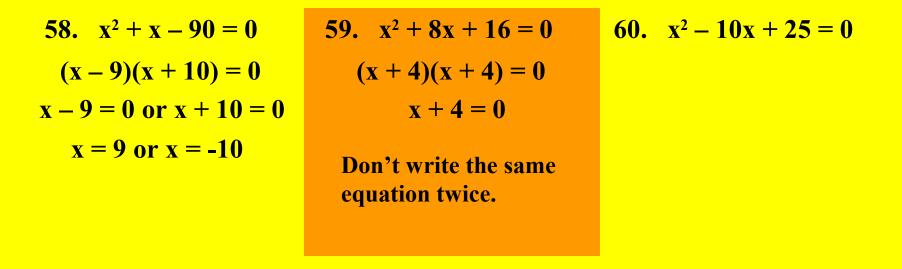
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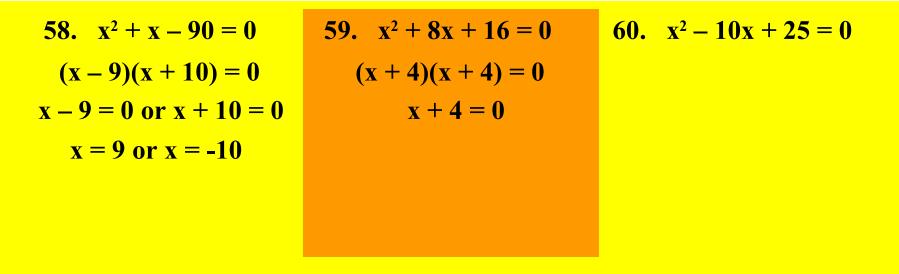
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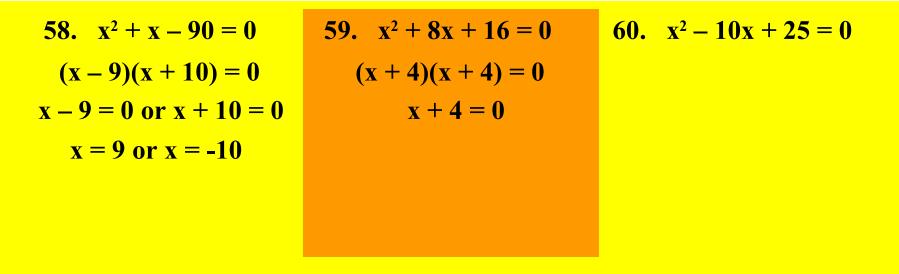
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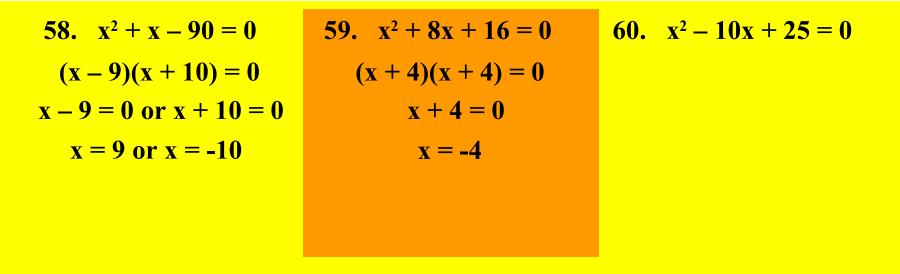


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x = 9 or x = -10	x = -4	Don't write the same equation twice.

Use the factoring method to solve each of the following equations.

58. $x^2 + x - 90 = 0$	59. $x^2 + 8x + 16 = 0$	$60. x^2 - 10x + 25 = 0$
(x-9)(x+10)=0	(x+4)(x+4) = 0	(x-5)(x-5)=0
x - 9 = 0 or $x + 10 = 0$	$\mathbf{x} + 4 = 0$	$\mathbf{x} - 5 = 0$
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Step 1: Write the equation in <u>standard form</u>: $Ax^2 + Bx + C = 0$ **Step 2:** Write the equation in <u>factored form</u>.

(Factor the polynomial $Ax^2 + Bx + C$.)

Step 3: Apply the 'zero property of multiplication. If PQ = 0, then P = 0 or Q = 0.

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Good luck on your homework !!

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