Algebra I Lesson #4 Unit 13 Class Worksheet #4 For Worksheets #5 & #7

Consider the following problems.

Consider the following problems.

 $(x + 5)^2 =$

Consider the following problems.

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Consider the following problems.

 $(x + 5)^2 =$ = (x + 5)(x + 5)

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Consider the following problems.

 $(x + 5)^2 =$ = $(x + 5)(x + 5) = x^2$

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Consider the following problems.

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 $(x + 5)^{2} =$ = (x + 5)(x + 5) = x² + 5x + 5x

Consider the following problems.

 $(x + 5)^2 =$ = $(x + 5)(x + 5) = x^2 + 5x + 5x$

Consider the following problems.

 $(x + 5)^{2} =$ $= (x + 5)(x + 5) = x^{2} + 5x + 5x + 25$

Consider the following problems.

 $(x + 5)^2 =$

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$$(x + 5)^2 = x^2 + 10x + 25$$

 $(x + A)^2 =$

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 $(x+5)^2 = x^2 + 10x + 25$

 $(x + A)^2 =$

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

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 $(x+5)^2 = x^2 + 10x + 25$

 $(x + A)^2 =$

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

Consider the following problems.

 $(x+5)^2 = x^2 + 10x + 25$

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

Consider the following problems.

 $(x+5)^2 = x^2 + 10x + 25$

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Consider the following problems.

 $(x+5)^2 = x^2 + 10x + 25$

 $(x + A)^2 = x^2 + 2Ax$

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 $(x+5)^2 = x^2 + 10x + 25$

 $(x + A)^2 = x^2 + 2Ax + A^2$

$$(x + 5)^2 = x^2 + 10x + 25$$

 $(x + A)^2 = x^2 + 2Ax + A^2$
 $(x - 7)^2 =$

Consider the following problems.

 $(x + 5)^2 = x^2 + 10x + 25$ $(x + A)^2 = x^2 + 2Ax + A^2$ $(x - 7)^2 =$

Consider the following problems.

 $(x + 5)^{2} = x^{2} + 10x + 25$ $(x + A)^{2} = x^{2} + 2Ax + A^{2}$ $(x - 7)^{2} =$ = (x - 7)(x - 7)

Consider the following problems.

 $(x + 5)^{2} = x^{2} + 10x + 25$ $(x + A)^{2} = x^{2} + 2Ax + A^{2}$ $(x - 7)^{2} =$ = (x - 7)(x - 7) =

$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
$$(x - 7)^{2} =$$
$$= (x - 7)(x - 7) = x^{2}$$

$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
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$$= (x - 7)(x - 7) = x^{2}$$

$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
$$(x - 7)^{2} =$$
$$= (x - 7)(x - 7) = x^{2} - 7x$$

$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
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$$= (x - 7)(x - 7) = x^{2} - 7x$$

$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
$$(x - 7)^{2} =$$
$$= (x - 7)(x - 7) = x^{2} - 7x - 7x$$

$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
$$(x - 7)^{2} =$$
$$= (x - 7)(x - 7) = x^{2} - 7x - 7x$$

$$(x + 5)^{2} = x^{2} + 10x + 25$$

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

$$(x - 7)^{2} =$$

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

$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
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$$= (x - 7)(x - 7) = x^{2} - 7x - 7x + 49 =$$

$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
$$(x - 7)^{2} =$$
$$= (x - 7)(x - 7) = x^{2} - 7x - 7x + 49 =$$

Complete the Square Consider the following problems.

$$(x + 5)^{2} = x^{2} + 10x + 25$$

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

$$(x - 7)^{2} = x^{2}$$

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

Complete the Square Consider the following problems.

$$(x + 5)^{2} = x^{2} + 10x + 25$$

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

$$(x - 7)^{2} = x^{2}$$

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

$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
$$(x - 7)^{2} = x^{2} - 14x$$

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

Consider the following problems.

$$(x + 5)^2 = x^2 + 10x + 25$$

 $(x + A)^2 = x^2 + 2Ax + A^2$

 $(x-7)^2 = x^2 - 14x$

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

$$(x + 5)^{2} = x^{2} + 10x + 25$$

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

$$(x - 7)^{2} = x^{2} - 14x + 49$$

$$= (x - 7)(x - 7) = x^{2} - 7x - 7x + 49 = 100$$

$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
$$(x - 7)^{2} = x^{2} - 14x + 49$$

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

$$(x + 5)^2 = x^2 + 10x + 25$$

 $(x + A)^2 = x^2 + 2Ax + A^2$
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 $(x + A)^2 = x^2 + 2Ax + A^2$
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 $(x - A)^2 =$

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 $(x + A)^2 = x^2 + 2Ax + A^2$
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 $(x - A)^2 =$

Consider the following problems.

$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
$$(x - 7)^{2} = x^{2} - 14x + 49$$
$$(x - A)^{2} =$$

 $= (\mathbf{x} - \mathbf{A})(\mathbf{x} - \mathbf{A})$

$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
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$$(x - A)^{2} = x^{2} - 2Ax + A^{2}$$

$$= (x - A)(x - A) = x^{2} - Ax - Ax + A^{2} = x^{2}$$

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$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
$$(x - 7)^{2} = x^{2} - 14x + 49$$
$$(x - A)^{2} = x^{2} - 2Ax + A^{2}$$

These are 'perfect square trinomials'.

Consider the following problems.

$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
$$(x - 7)^{2} = x^{2} - 14x + 49$$
$$(x - A)^{2} = x^{2} - 2Ax + A^{2}$$

These are 'perfect square trinomials'.

(trinomials that are perfect squares)

Consider the following problems.

$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
$$(x - 7)^{2} = x^{2} - 14x + 49$$
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Consider the following problems.

$$(x + 5)^{2} = x^{2} + 10x + 25$$
$$(x + A)^{2} = x^{2} + 2Ax + A^{2}$$
$$(x - 7)^{2} = x^{2} - 14x + 49$$
$$(x - A)^{2} = x^{2} - 2Ax + A^{2}$$

 $x^2 + 10x + 25 =$

Consider the following problems.

T = ZAX

$$(x + 5)^2 = x^2 + 10x + 25$$

 $(x + A)^2 = x^2 + 2Ax + A^2$

$$(x-7)^2 = x^2 - 14x + 49$$

$$(x - A)^2 = x^2 - 2Ax + A^2$$

$$x^2 + 10x + 25 = (x + 5)^2$$

Consider the following problems.

$$(x+5)^2 = x^2 + 10x + 25$$

$$(x + A)^2 = x^2 + 2Ax + A^2$$

$$(x-7)^2 = x^2 - 14x + 49$$

$$(x - A)^2 = x^2 - 2Ax + A^2$$

$$x^2 + 10x + 25 = (x + 5)^2$$

$$\mathbf{x}^2 + 2\mathbf{A}\mathbf{x} + \mathbf{A}^2 =$$

Consider the following problems.

$$(x+5)^2 = \frac{x^2 + 10x + 25}{x^2 + 10x + 25}$$

$$(x + A)^2 = x^2 + 2Ax + A^2$$

$$(x-7)^2 = x^2 - 14x + 49$$

$$(x - A)^2 = x^2 - 2Ax + A^2$$

$$x^2 + 10x + 25 = (x + 5)^2$$

$$x^2 + 2Ax + A^2 = (x + A)^2$$

Consider the following problems.

$$(x+5)^2 = x^2 + 10x + 25$$

$$(x + A)^2 = x^2 + 2Ax + A^2$$

$$(x-7)^2 = x^2 - 14x + 49$$

$$(x - A)^2 = x^2 - 2Ax + A^2$$

$$x^2 + 10x + 25 = (x + 5)^2$$

$$x^2 + 2Ax + A^2 = (x + A)^2$$

 $x^2 - 14x + 49 =$

Consider the following problems.

$$(x+5)^2 = \frac{x^2 + 10x + 25}{x^2 + 10x + 25}$$

$$(x + A)^2 = x^2 + 2Ax + A^2$$

$$(x-7)^2 = x^2 - 14x + 49$$

$$(x - A)^2 = x^2 - 2Ax + A^2$$

$$x^{2} + 10x + 25 = (x + 5)^{2}$$
$$x^{2} + 2Ax + A^{2} = (x + A)^{2}$$
$$x^{2} - 14x + 49 = (x - 7)^{2}$$

These are '<u>perfect square trinomials</u>'. (trinomials that are perfect squares) These equations can be written in

These equations can be written in reverse order.

Consider the following problems.

$$(x+5)^2 = x^2 + 10x + 25$$

$$(x + A)^2 = x^2 + 2Ax + A^2$$

$$(x-7)^2 = x^2 - 14x + 49$$

$$(x - A)^2 = x^2 - 2Ax + A^2$$

$$x^{2} + 10x + 25 = (x + 5)^{2}$$
$$x^{2} + 2Ax + A^{2} = (x + A)^{2}$$
$$x^{2} - 14x + 49 = (x - 7)^{2}$$

 $\mathbf{x}^2 - 2\mathbf{A}\mathbf{x} + \mathbf{A}^2 =$

Consider the following problems.

$$(x + 5)^2 = x^2 + 10x + 25$$

 $(x + A)^2 = x^2 + 2Ax + A^2$

$$(x-7)^2 = x^2 - 14x + 49$$

$$(x - A)^2 = x^2 - 2Ax + A^2$$

$$x^{2} + 10x + 25 = (x + 5)^{2}$$
$$x^{2} + 2Ax + A^{2} = (x + A)^{2}$$
$$x^{2} - 14x + 49 = (x - 7)^{2}$$

$$x^2 - 2Ax + A^2 = (x - A)^2$$

$$x^{2} + 10x + 25 = (x + 5)^{2}$$

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

$$x^{2} - 14x + 49 = (x - 7)^{2}$$

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Consider the following problems.

$$x^{2} + 10x + 25 = (x + 5)^{2}$$

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

$$x^{2} - 14x + 49 = (x - 7)^{2}$$

$$x^{2} - 2Ax + A^{2} = (x - A)^{2}$$

Given the first two terms of any perfect square trinomial,

Consider the following problems.

$$x^2 + 10x + 25 = (x+5)^2$$

$$x^2 + 2Ax + A^2 = (x + A)^2$$

$$x^2 - 14x + 49 = (x - 7)^2$$

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

Given the first two terms of any perfect square trinomial, you will have to <u>complete the</u> <u>square</u>.

Consider the following problems.

$$x^2 + 10x + 25 = (x + 5)^2$$

$$x^2 + 2Ax + A^2 = (x + A)^2$$

$$x^2 - 14x + 49 = (x - 7)^2$$

$$x^2 - 2Ax + A^2 = (x - A)^2$$

Given the first two terms of any perfect square trinomial, you will have to '<u>complete the</u> <u>square</u>'. This means you will have to determine the third term that will make the expression a perfect square.

Consider the following problems.

$$x^2 + 10x + 25 = (x + 5)^2$$

$$x^2 + 2Ax + A^2 = (x + A)^2$$

$$x^2 - 14x + 49 = (x - 7)^2$$

$$x^2 - 2Ax + A^2 = (x - A)^2$$

Consider the following problems.

$$x^2 + 10x + 25 = (x + 5)^2$$

$$x^2 + 2Ax + A^2 = (x + A)^2$$

$$x^2 - 14x + 49 = (x - 7)^2$$

$$x^2 - 2Ax + A^2 = (x - A)^2$$

Consider the following problems.

$$x^2 + 10x + 25 = (x + 5)^2$$

$$x^2 + 2Ax + A^2 = (x + A)^2$$

$$x^2 - 14x + 49 = (x - 7)^2$$

$$x^2 - 2Ax + A^2 = (x - A)^2$$

Consider the following problems.

$$x^2 + 10x + 25 = (x + 5)^2$$

$$x^2 + 2Ax + A^2 = (x + A)^2$$

$$x^{2} - 14x + 49 = (x - 7)^{2}$$

 $x^{2} - 2Ax + A^{2} = (x - A)^{2}$

2A = 10

Consider the following problems.

$$x^2 + 10x + 25 = (x + 5)^2$$

$$x^2 + 2Ax + A^2 = (x + A)^2$$

$$x^2 - 14x + 49 = (x - 7)^2$$

$$x^2 - 2Ax + A^2 = (x - A)^2$$

$$2A = 10 \rightarrow$$

Consider the following problems.

$$x^2 + 10x + 25 = (x + 5)^2$$

$$x^2 + 2Ax + A^2 = (x + A)^2$$

$$x^2 - 14x + 49 = (x - 7)^2$$

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

$$\mathbf{2A} = \mathbf{10} \quad \longrightarrow \quad \mathbf{A} = \mathbf{5}$$

Consider the following problems.

$$x^2 + 10x + 25 = (x + 5)^2$$

$$x^2 + 2Ax + A^2 = (x + A)^2$$

$$x^2 - 14x + 49 = (x - 7)^2$$

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

$$2A = 10 \rightarrow A = 5 \rightarrow$$

Consider the following problems.

$$x^2 + 10x + 25 = (x + 5)^2$$

$$x^2 + 2Ax + A^2 = (x + A)^2$$

$$x^2 - 14x + 49 = (x - 7)^2$$

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

$$\mathbf{2A} = \mathbf{10} \quad \longrightarrow \quad \mathbf{A} = \mathbf{5} \quad \longrightarrow \quad \mathbf{A}^2 = \mathbf{25}$$

Consider the following problems.

$$x^2 + 10x + 25 = (x + 5)^2$$

$$x^2 + 2Ax + A^2 = (x + A)^2$$

$$x^2 - 14x + 49 = (x - 7)^2$$

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$$\mathbf{2A} = \mathbf{10} \quad \longrightarrow \quad \mathbf{A} = \mathbf{5} \quad \longrightarrow \quad \mathbf{A}^2 = \mathbf{25}$$

Given the first two terms of any perfect square trinomial, you will have to '<u>complete the</u> square'. This means you will have to determine the third term that will make the expression a perfect square. The key here is to see the relationship between the coefficient of x in the middle term and the third term.

Consider the following problems.

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 $x^2 + 10x$

Consider the following problems.

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$$x^2 - 14x + 49 = (x - 7)^2$$

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Consider the following problems.

$$x^2 + 10x + 25 = (x + 5)^2$$

$$x^2 + 2Ax + A^2 = (x + A)^2$$

$$x^2 - 14x + 49 = (x - 7)^2$$

$$x^2 - 2Ax + A^2 = (x - A)^2$$

Consider the following problems.

 $x^2 + 2Ax + A^2 = (x + A)^2$

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 $x^2 + 8x$

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$$2\mathbf{A} = \mathbf{8}$$

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 $x^2 + 8x$

Divide by 2.

$$2A = 8 \rightarrow A = 4$$

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$$2A = 8 \rightarrow A = 4 \rightarrow A^2 = 16$$

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$$x^{2} + 8x + 16$$
Divide by 2.

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Square it.

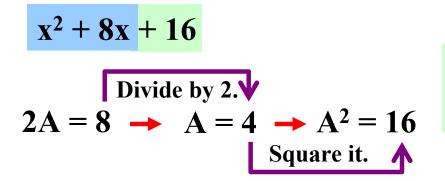
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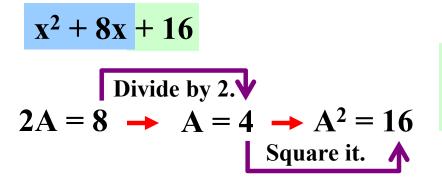
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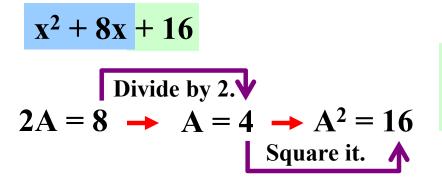
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2A = 12

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 $x^{2} - 12x$ Divide by 2. $2A = 12 \rightarrow A = 6 \rightarrow A^{2} = 36$ Square it. Given the first two terms of any perfect square trinomial, you will have to '<u>complete the</u> <u>square</u>'. This means you will have to determine the third term that will make the expression a perfect square.

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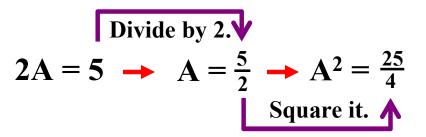
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Solve each of the following using the complete the square method.

```
1. x^2 + 4x - 12 = 0
x^2 + 4x = 12
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Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

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x^{2} + 4x

x^{2} + 2Ax + A^{2} = (x + A)^{2}
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Step 1: Write the equation in the form $x^2 + dx = f$

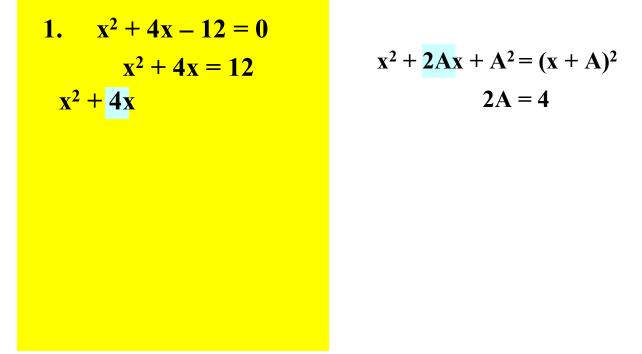
Solve each of the following using the complete the square method.

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$$x^{2} + 4x - 12 = 0$$

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 $x^{2} + 4x$
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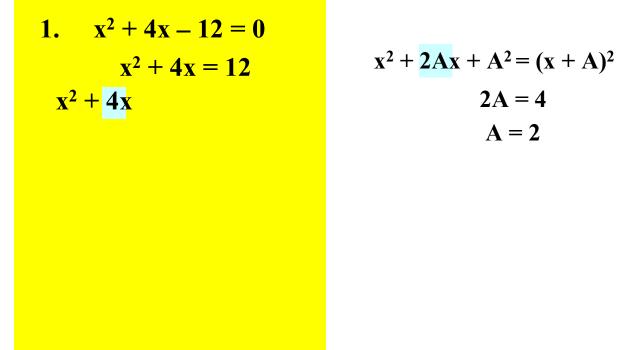
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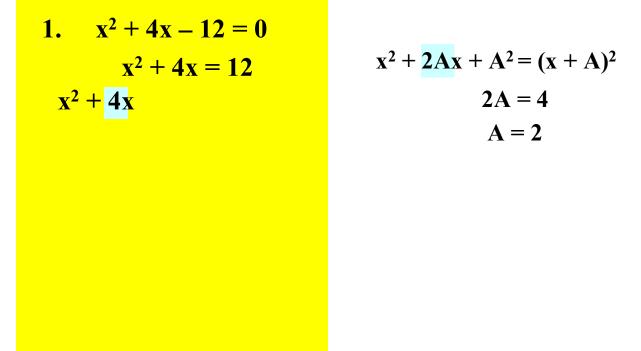
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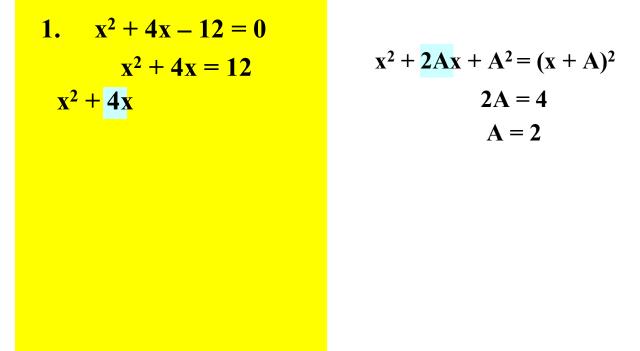


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Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.



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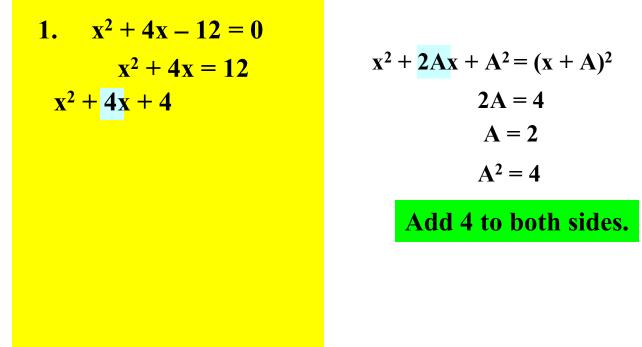
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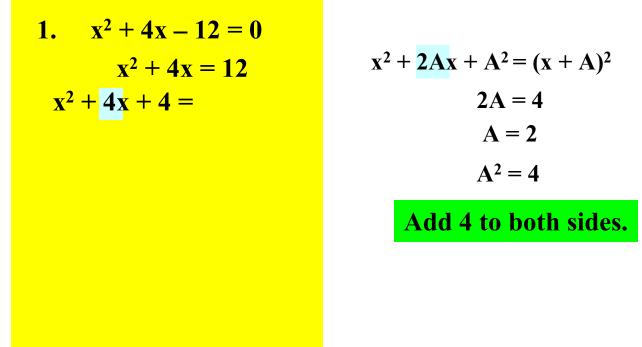


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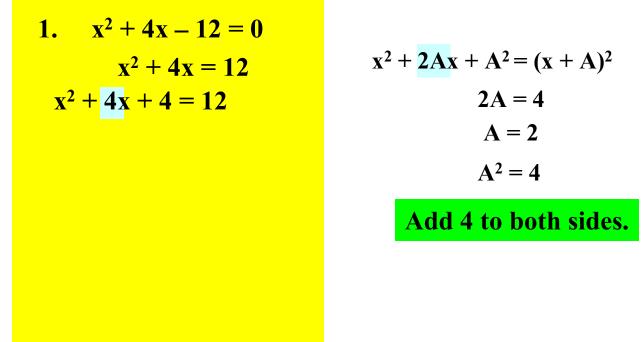


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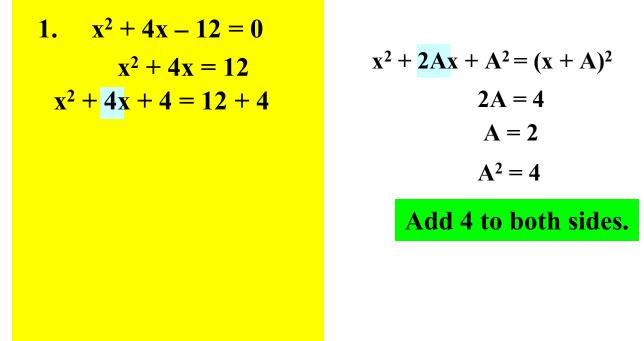


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Square A. (This is the term that must be added to '<u>complete the square</u>'.)

Solve each of the following using the complete the square method.

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$$x^{2} + 4x - 12 = 0$$

 $x^{2} + 4x = 12$
 $x^{2} + 4x + 4 = 12 + 4$
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$$x^{2} + 4x - 12 = 0$$

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The Square Root Property If $N^2 = k$ and k > 0, then $N = \pm \sqrt{k}$.

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Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Step 3 : Apply the square root property. Write the equation in the form

$$\mathbf{x} + \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Solve each of the following using the complete the square method.

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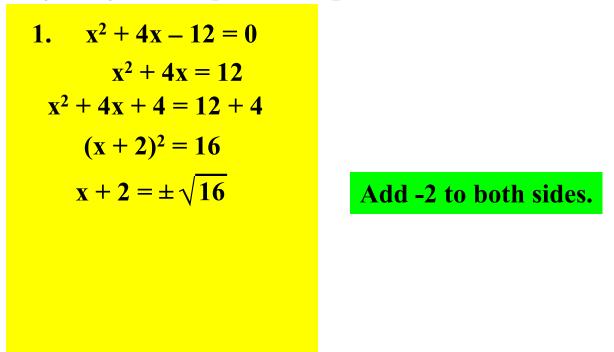
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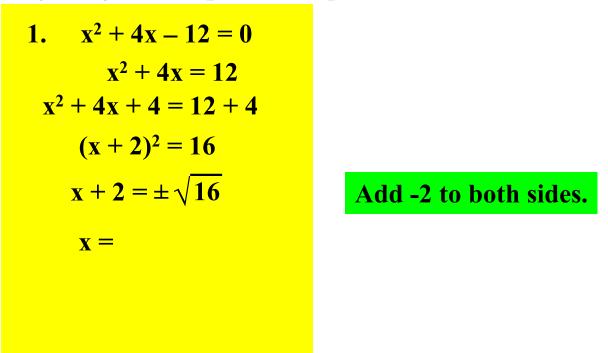
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 $x + 2 = \pm \sqrt{16}$
 $x = -2$
Add -2 to both sides.

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- **Step 1:** Write the equation in the form $x^2 + dx = f$
- Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.
- Step 3 : Apply the square root property. Write the equation in the form $x + A = \pm \sqrt{k}$
- **Step 4 :** Solve for x. Write the equation in the form $x = -A \pm \sqrt{k}$

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If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

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 $x = -2 \pm \sqrt{16}$
 $x = -2 \pm \sqrt{16}$
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 $x = -2 + 4$ or $x = -2 - 4$

If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

Step 1: Write the equation in the form $x^2 + dx = f$

- Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.
- Step 3 : Apply the square root property. Write the equation in the form $x + A = \pm \sqrt{k}$

Solve each of the following using the complete the square method.

1.
$$x^{2} + 4x - 12 = 0$$

 $x^{2} + 4x = 12$
 $x^{2} + 4x + 4 = 12 + 4$
 $(x + 2)^{2} = 16$
 $x + 2 = \pm \sqrt{16}$
 $x = -2 \pm \sqrt{16}$
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 $x = -2 \pm 4$ or $x = -2 - 4$

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- **Step 4 :** Solve for x. Write the equation in the form $x = -A \pm \sqrt{k}$
- **Step 5 : Express the solutions in 'best from'.**

Solve each of the following using the complete the square method.

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 $x^{2} + 4x + 4 = 12 + 4$
 $(x + 2)^{2} = 16$
 $x + 2 = \pm \sqrt{16}$
 $x = -2 \pm \sqrt{16}$
 $x = -2 \pm \sqrt{16}$
 $x = -2 \pm 4$ or $x = -2 - 4$
 $x = 2$ or $x = -6$

This problem could have been solved using the factoring method.

- **Step 1:** Write the equation in the form $x^2 + dx = f$
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This problem could have been solved using the factoring method. Let's compare.

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- **Step 5 : Express the solutions in 'best from'.**

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$$x^{2} + 4x - 12 = 0$$

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 $x^{2} + 4x + 4 = 12 + 4$
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 $x + 2 = \pm \sqrt{16}$
 $x = -2 \pm \sqrt{16}$

This problem could have been solved using the factoring method. Let's compare.

$$x^{2} + 4x - 12 = 0$$

(x - 2)(x + 6) = 0

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Step 3 : Apply the square root property. Write the equation in the form $x + A = \pm \sqrt{k}$

Step 4 : Solve for x. Write the equation in the form $x = -A \pm \sqrt{k}$

Solve each of the following using the complete the square method.

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$$x^{2} + 4x - 12 = 0$$

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 $x^{2} + 4x + 4 = 12 + 4$
 $(x + 2)^{2} = 16$
 $x + 2 = \pm \sqrt{16}$
 $x = -2 \pm \sqrt{16}$
 $x = -2 \pm \sqrt{16}$
 $x = -2 + 4$ or $x = -2 - 4$
 $x = 2$ or $x = -6$

This problem could have been solved using the factoring method. Let's compare.

$$x^{2} + 4x - 12 = 0$$

(x - 2)(x + 6) = 0
x - 2 = 0 or x + 6 = 0

Step 1: Write the equation in the form $x^2 + dx = f$

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$$x^{2} + 4x - 12 = 0$$

 $x^{2} + 4x = 12$
 $x^{2} + 4x + 4 = 12 + 4$
 $(x + 2)^{2} = 16$
 $x + 2 = \pm \sqrt{16}$
 $x = -2 \pm \sqrt{16}$

This problem could have been solved using the factoring method. Let's compare.

$$x^{2} + 4x - 12 = 0$$

(x - 2)(x + 6) = 0
x - 2 = 0 or x + 6 = 0
x = 2 or x = -6

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Step 3 : Apply the square root property. Write the equation in the form $x + A = \pm \sqrt{k}$

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This problem could have been solved using the factoring method. Let's compare.

$$x^{2} + 4x - 12 = 0$$

(x - 2)(x + 6) = 0
x - 2 = 0 or x + 6 = 0
x = 2 or x = -6

You can draw your own conclusions.

Step 1: Write the equation in the form $x^2 + dx = f$

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- Step 3 : Apply the square root property. Write the equation in the form $\mathbf{x} + \mathbf{A} = \pm \sqrt{\mathbf{k}}$
- **Step 4 :** Solve for x. Write the equation in the form $x = -A \pm \sqrt{k}$
- **Step 5 : Express the solutions in 'best from'.**

Solve each of the following using the complete the square method.

2.
$$x^2 + 8x - 4 = 0$$

Solve each of the following using the complete the square method.

2. $x^2 + 8x - 4 = 0$

Solve each of the following using the complete the square method.

2. $x^2 + 8x - 4 = 0$

Solve each of the following using the complete the square method.

2. $x^2 + 8x - 4 = 0$

Add 4 to both sides.

Solve each of the following using the complete the square method.

2. $x^2 + 8x - 4 = 0$ $x^2 + 8x$

Add 4 to both sides.

Solve each of the following using the complete the square method.

2. $x^2 + 8x - 4 = 0$ $x^2 + 8x =$

Add 4 to both sides.

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Solve each of the following using the complete the square method.

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2. x^2 + 8x - 4 = 0
x^2 + 8x = 4
```

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2. $x^2 + 8x - 4 = 0$ $x^2 + 8x = 4$

Step 1: Write the equation in the form $x^2 + dx = f$

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Solve each of the following using the complete the square method.

2. $x^2 + 8x - 4 = 0$ $x^2 + 8x = 4$ $x^2 + 8x$

Step 1: Write the equation in the form $x^2 + dx = f$

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```
2. x^2 + 8x - 4 = 0
x^2 + 8x = 4
x^2 + 8x
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 $x^{2} + 8x = 4$
 $x^{2} + 8x$
 $x^{2} + 8x$

Step 1: Write the equation in the form $x^2 + dx = f$

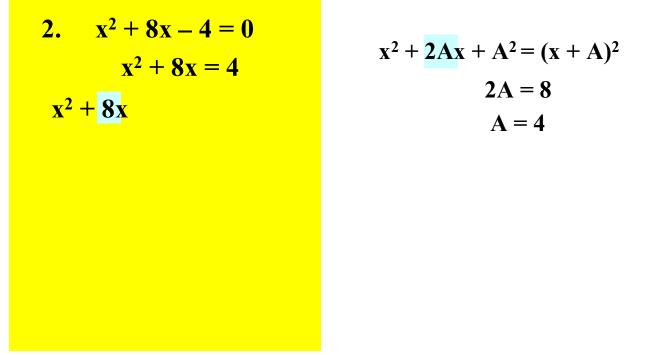
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 $x^{2} + 8x$
 $x^{2} + 8x$
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 $x^{2} + 8x$

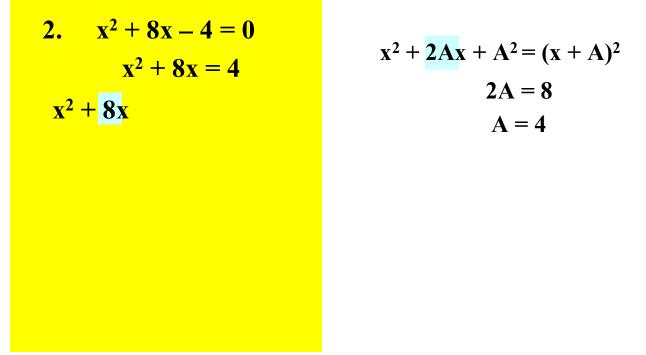
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Step 1: Write the equation in the form $x^2 + dx = f$

Solve each of the following using the complete the square method.



Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

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$$x^{2} + 8x - 4 = 0$$

 $x^{2} + 8x = 4$
 $x^{2} + 8x$
 $x^{2} + 8x$
 $x^{2} + 8x$
 $x^{2} + 8x$
 $x^{2} + 2Ax + A^{2} = (x + A)^{2}$
 $2A = 8$
 $A = 4$

Step 1: Write the equation in the form $x^2 + dx = f$

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 $x^{2} + 8x + 16$
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 $A = 4$
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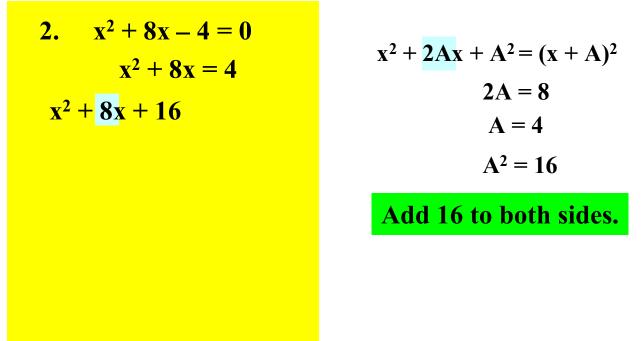
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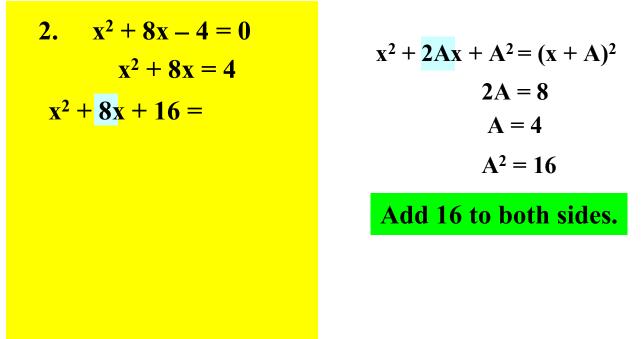


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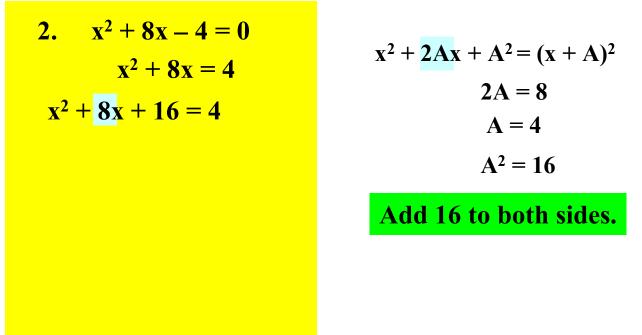


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$$x^{2} + 8x - 4 = 0$$

 $x^{2} + 8x = 4$
 $x^{2} + 8x + 16 = 4 + 16$
 $x^{2} + 8x + 16 = 4 + 16$
 $x^{2} + 2Ax + A^{2} = (x + A)^{2}$
 $2A = 8$
 $A = 4$
 $A^{2} = 16$
Add 16 to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Square A. (This is the term that must be added to '<u>complete the square</u>'.)

Solve each of the following using the complete the square method.

2.
$$x^{2} + 8x - 4 = 0$$

 $x^{2} + 8x = 4$
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 $2A = 8$
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Square A. (This is the term that must be added to '<u>complete the square</u>'.)

Solve each of the following using the complete the square method.

2.
$$x^{2} + 8x - 4 = 0$$

 $x^{2} + 8x = 4$
 $x^{2} + 8x + 16 = 4 + 16$
 $(x + 4)^{2} = 20$
 $x^{2} + 8x + 16 = 4 + 16$
 $A = 4$
 $A^{2} = 16$

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

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$$x^{2} + 8x - 4 = 0$$

 $x^{2} + 8x = 4$
 $x^{2} + 8x + 16 = 4 + 16$
 $(x + 4)^{2} = 20$

The Square Root PropertyIf $N^2 = k$ and k > 0,then $N = \pm \sqrt{k}$.

Step 1: Write the equation in the form $x^2 + dx = f$

Solve each of the following using the complete the square method.

2.
$$x^{2} + 8x - 4 = 0$$

 $x^{2} + 8x = 4$
 $x^{2} + 8x + 16 = 4 + 16$
 $(x + 4)^{2} = 20$
 $x + 4$

The Square Root Property If $N^2 = k$ and k > 0, then $N = \pm \sqrt{k}$.

Step 1: Write the equation in the form $x^2 + dx = f$

Solve each of the following using the complete the square method.

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Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Step 3 : Apply the square root property. Write the equation in the form

$$\mathbf{x} + \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Solve each of the following using the complete the square method.

2.
$$x^{2} + 8x - 4 = 0$$

 $x^{2} + 8x = 4$
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 $x + 4 = \pm \sqrt{20}$
Add -4 to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Step 3 : Apply the square root property. Write the equation in the form

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 $(x + 4)^{2} = 20$
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Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

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Solve each of the following using the complete the square method.

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$$x^{2} + 8x - 4 = 0$$

 $x^{2} + 8x = 4$
 $x^{2} + 8x + 16 = 4 + 16$
 $(x + 4)^{2} = 20$
 $x + 4 = \pm \sqrt{20}$
 $x = -4$
Add -4 to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Step 3 : Apply the square root property. Write the equation in the form $\sqrt{2}$

$$\mathbf{x} + \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Solve each of the following using the complete the square method.

2.
$$x^{2} + 8x - 4 = 0$$

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 $x + 4 = \pm \sqrt{20}$
 $x = -4 \pm$
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Step 1: Write the equation in the form $x^2 + dx = f$

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- **Step 1:** Write the equation in the form $x^2 + dx = f$
- **Step 2 :** Complete the square. Write the equation in the form $(x + A)^2 = k$.
- Step 3 : Apply the square root property. Write the equation in the form $x + A = \pm \sqrt{k}$
- **Step 4 :** Solve for x. Write the equation in the form $x = -A \pm \sqrt{k}$

Solve each of the following using the complete the square method.

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$$x^{2} + 8x - 4 = 0$$

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If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

Step 1: Write the equation in the form $x^2 + dx = f$

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 $x = -4$

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Solve each of the following using the complete the square method.

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If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

- $\sqrt{20} =$
- **Step 1:** Write the equation in the form $x^2 + dx = f$
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- Step 3 : Apply the square root property. Write the equation in the form $x + A = \pm \sqrt{k}$

Solve each of the following using the complete the square method.

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$$x^{2} + 8x - 4 = 0$$

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If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

$$\sqrt{20} = \sqrt{4} \sqrt{5}$$

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Step 3 : Apply the square root property. Write the equation in the form $x + A = \pm \sqrt{k}$

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- **Step 2 :** Complete the square. Write the equation in the form $(x + A)^2 = k$.
- Step 3 : Apply the square root property. Write the equation in the form $x + A = \pm \sqrt{k}$
- **Step 4 :** Solve for x. Write the equation in the form $x = -A \pm \sqrt{k}$
- **Step 5 : Express the solutions in 'best from'.**

Solve each of the following using the complete the square method.

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$$x^{2} + 8x - 4 = 0$$

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Step 5 : Express the solutions in 'best from'.

Solve each of the following using the complete the square method.

3. $3x^2 + 4x - 3 = 0$

Solve each of the following using the complete the square method.

 $3. \quad 3x^2 + 4x - 3 = 0$

Solve each of the following using the complete the square method.

```
3. 3x^2 + 4x - 3 = 0
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Solve each of the following using the complete the square method.

3. $3x^2 + 4x - 3 = 0$ Add 3 to both sides.

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3. $3x^2 + 4x - 3 = 0$ $3x^2 + 4x = 3$ Add 3 to both sides.

Solve each of the following using the complete the square method.

3. $3x^2 + 4x - 3 = 0$ $3x^2 + 4x = 3$ Add 3 to both sides. Divide both sides by 3.

Solve each of the following using the complete the square method.

3. $3x^2 + 4x - 3 = 0$ $3x^2 + 4x = 3$ x^2 Add 3 to both sides. Divide both sides by 3.

Solve each of the following using the complete the square method.

3. $3x^2 + 4x - 3 = 0$ $3x^2 + 4x = 3$ $x^2 +$ Add 3 to both sides. Divide both sides by 3.

Solve each of the following using the complete the square method.

3. $3x^2 + 4x - 3 = 0$ $3x^2 + 4x = 3$ $x^2 + \frac{4}{3}x$ Add 3 to both sides. Divide both sides by 3.

Solve each of the following using the complete the square method.

3. $3x^2 + 4x - 3 = 0$ $3x^2 + 4x = 3$ $x^2 + \frac{4}{3}x = 3$ Add 3 to both sides. Divide both sides by 3.

Solve each of the following using the complete the square method.

3. $3x^2 + 4x - 3 = 0$ $3x^2 + 4x = 3$ $x^2 + \frac{4}{3}x = 1$ Add 3 to both sides. Divide both sides by 3.

Solve each of the following using the complete the square method.

3.
$$3x^2 + 4x - 3 = 0$$

 $3x^2 + 4x = 3$
 $x^2 + \frac{4}{3}x = 1$

Solve each of the following using the complete the square method.

3.
$$3x^{2} + 4x - 3 = 0$$

 $3x^{2} + 4x = 3$
 $x^{2} + \frac{4}{3}x = 1$

Step 1: Write the equation in the form $x^2 + dx = f$ **Step 2:** Complete the square. Write the equation in the form $(x + A)^2 = k$.

Solve each of the following using the complete the square method.

3.
$$3x^{2} + 4x - 3 = 0$$

 $3x^{2} + 4x = 3$
 $x^{2} + \frac{4}{3}x = 1$
 $x^{2} + \frac{4}{3}x$

Step 1: Write the equation in the form $x^2 + dx = f$ Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Solve each of the following using the complete the square method.

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 $x^{2} + \frac{4}{3}x = 1$
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 $x^{2} + \frac{4}{3}x = 1$
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 $x^{2} + \frac{4}{3}x$

Step 1: Write the equation in the form x² + dx = f
Step 2: Complete the square. Write the equation in the form (x + A)² = k.
Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

3.
$$3x^{2} + 4x - 3 = 0$$

 $3x^{2} + 4x = 3$
 $x^{2} + \frac{4}{3}x = 1$
 $x^{2} + \frac{4}{3}x$
 $x^{2} + \frac{4}{3}x$

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

3.
$$3x^{2} + 4x - 3 = 0$$

 $3x^{2} + 4x = 3$
 $x^{2} + \frac{4}{3}x = 1$
 $x^{2} + \frac{4}{3}x$
 $A = \frac{2}{3}$
 $A^{2} = \frac{4}{9}$

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

3.
$$3x^{2} + 4x - 3 = 0$$

 $3x^{2} + 4x = 3$
 $x^{2} + \frac{4}{3}x = 1$
 $x^{2} + \frac{4}{3}x + \frac{4}{9}$
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Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

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Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

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$$3x^{2} + 4x - 3 = 0$$

 $3x^{2} + 4x = 3$
 $x^{2} + \frac{4}{3}x = 1$
 $x^{2} + \frac{4}{3}x + \frac{4}{9}$
 $A = \frac{2}{3}$
 $A^{2} = \frac{4}{9}$
Add $\frac{4}{9}$ to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

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$$3x^{2} + 4x - 3 = 0$$

 $3x^{2} + 4x = 3$
 $x^{2} + \frac{4}{3}x = 1$
 $x^{2} + \frac{4}{3}x + \frac{4}{9} =$
 $A = \frac{2}{3}$
 $A^{2} = \frac{4}{9}$
Add $\frac{4}{9}$ to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

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$$3x^{2} + 4x - 3 = 0$$

 $3x^{2} + 4x = 3$
 $x^{2} + \frac{4}{3}x = 1$
 $x^{2} + \frac{4}{3}x + \frac{4}{9} = 1$
 $A = \frac{2}{3}$
 $A^{2} = \frac{4}{9}$
Add $\frac{4}{9}$ to both sides.

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Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

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$$3x^{2} + 4x - 3 = 0$$

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If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

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 $x = \frac{-2}{3} \pm \sqrt{\frac{13}{9}} = \frac{-2}{3} \pm \frac{\sqrt{13}}{3}$
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Add 1 to both sides.

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x^{2} - 1x = 1
x^{2} - 1x
```

Step 1: Write the equation in the form $x^2 - dx = f$ Step 2 : Complete the square. Write the equation in the form $(x - A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

5.
$$x^{2} - x - 1 = 0$$

 $x^{2} - 1x = 1$
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Solve each of the following using the complete the square method.

5.
$$x^{2} - x - 1 = 0$$

 $x^{2} - 1x = 1$
 $x^{2} - 1x$
 $x^{2} - 2Ax + A^{2} = (x - A)^{2}$
 $2A = 1$
 $A = \frac{1}{2}$

Step 1: Write the equation in the form $x^2 - dx = f$

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Step 1: Write the equation in the form x² – dx = f
Step 2: Complete the square. Write the equation in the form (x – A)² = k.
Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

5.
$$x^{2} - x - 1 = 0$$

 $x^{2} - 1x = 1$
 $x^{2} - 1x$
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 $x^{2} - \frac{1}{2}$
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Step 2 : Complete the square. Write the equation in the form $(x - A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

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Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

5.
$$x^{2} - x - 1 = 0$$

 $x^{2} - 1x = 1$
 $x^{2} - 1x + \frac{1}{4}$
 $x^{2} - \frac{1}{2}x + \frac{1}{4}$
 $x^{2} - \frac{1}{2}x + \frac{1}{4}$
 $x^{2} - \frac{1}{2}x + \frac{1}{2}$
 $x^{2} - \frac{1}{2}x + \frac{1}{2}$
 $x^{2} - \frac{1}{4}$

Step 1: Write the equation in the form $x^2 - dx = f$

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Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

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$$x^{2} - x - 1 = 0$$

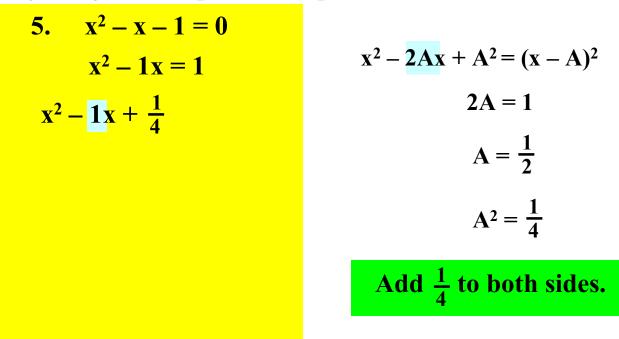
 $x^{2} - 1x = 1$
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Solve each of the following using the complete the square method.

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$$x^{2} - x - 1 = 0$$

 $x^{2} - 1x = 1$
 $x^{2} - 1x + \frac{1}{4} =$
 $x^{2} - \frac{1}{4}x + \frac{1}{4} =$
Add $\frac{1}{4}$ to both sides.

Step 1: Write the equation in the form $x^2 - dx = f$

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Solve each of the following using the complete the square method.

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$$x^{2} - x - 1 = 0$$

 $x^{2} - 1x = 1$
 $x^{2} - 1x + \frac{1}{4} = 1$
 $x^{2} - \frac{1}{4} + \frac{1}{4} = 1$
Add $\frac{1}{4}$ to both sides.

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Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

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$$x^{2} - x - 1 = 0$$

 $x^{2} - 1x = 1$
 $x^{2} - 1x + \frac{1}{4} = 1 + \frac{1}{4}$
 $x^{2} - \frac{1}{x} + \frac{1}{4} = 1 + \frac{1}{4}$
 $x^{2} - \frac{2}{4}x + A^{2} = (x - A)^{2}$
 $2A = 1$
 $A = \frac{1}{2}$
 $A^{2} = \frac{1}{4}$
Add $\frac{1}{4}$ to both sides.

Step 1: Write the equation in the form $x^2 - dx = f$

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 $(x - \frac{1}{2})^{2}$
 $x^{2} - \frac{1}{2}$
 $x^{2} - 2Ax + A^{2} = (x - A)^{2}$
 $2A = 1$
 $A = \frac{1}{2}$
 $A^{2} = \frac{1}{4}$
Add $\frac{1}{2}$ to both sides.

4

Step 1: Write the equation in the form $x^2 - dx = f$

Step 2 : Complete the square. Write the equation in the form $(x - A)^2 = k$.

Solve each of the following using the complete the square method.

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 $x^{2} - 1x = 1$
 $x^{2} - 1x + \frac{1}{4} = 1 + \frac{1}{4}$
 $(x - \frac{1}{2})^{2}$
 $x^{2} - 2Ax + A^{2} = (x - A)^{2}$
 $2A = 1$
 $A = \frac{1}{2}$
 $A^{2} = \frac{1}{4}$
Add $\frac{1}{4}$ to both sides.

Step 1: Write the equation in the form $x^2 - dx = f$

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Solve each of the following using the complete the square method.

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 $x^{2} - 2Ax + A^{2} = (x - A)^{2}$
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 $A = \frac{1}{2}$
 $A^{2} = \frac{1}{4}$
Add $\frac{1}{4}$ to both sides.

Step 1: Write the equation in the form $x^2 - dx = f$

Step 2 : Complete the square. Write the equation in the form $(x - A)^2 = k$.

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$$x^{2} - x - 1 = 0$$

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 $x^{2} - 1x + \frac{1}{4} = 1 + \frac{1}{4}$
 $(x - \frac{1}{2})^{2} = \frac{5}{4}$
 $x^{2} - 2Ax + A^{2} = (x - A)^{2}$
 $2A = 1$
 $A = \frac{1}{2}$
 $A^{2} = \frac{1}{4}$
Add $\frac{1}{4}$ to both sides.

Auu

Step 1: Write the equation in the form $x^2 - dx = f$

Step 2 : Complete the square. Write the equation in the form $(x - A)^2 = k$.

Solve each of the following using the complete the square method.

```
5. x^{2} - x - 1 = 0

x^{2} - 1x = 1

x^{2} - 1x + \frac{1}{4} = 1 + \frac{1}{4}

(x - \frac{1}{2})^{2} = \frac{5}{4}
```

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5. x^{2} - x - 1 = 0

x^{2} - 1x = 1

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```

Step 1: Write the equation in the form $x^2 - dx = f$

- **Step 2 :** Complete the square. Write the equation in the form $(x A)^2 = k$.
- Step 3 : Apply the square root property. Write the equation in the form $x A = \pm \sqrt{k}$

Solve each of the following using the complete the square method.

5.
$$x^2 - x - 1 = 0$$

 $x^2 - 1x = 1$
 $x^2 - 1x + \frac{1}{4} = 1 + \frac{1}{4}$
 $(x - \frac{1}{2})^2 = \frac{5}{4}$

The Square Root Property If $N^2 = k$ and k > 0, then $N = \pm \sqrt{k}$.

Step 1: Write the equation in the form $x^2 - dx = f$

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 $x - \frac{1}{2}$

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 $x^2 - 1x + \frac{1}{4} = 1 + \frac{1}{4}$
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 $x - \frac{1}{2} = \pm \sqrt{\frac{5}{4}}$

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$$\mathbf{x} - \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

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 $x - \frac{1}{2} = \pm \sqrt{\frac{5}{4}}$
Add $\frac{1}{2}$ to both sides.

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- Step 2 : Complete the square. Write the equation in the form $(x A)^2 = k$.
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$$\mathbf{X} - \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Solve each of the following using the complete the square method.

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 $x^{2} - 1x + \frac{1}{4} = 1 + \frac{1}{4}$
 $(x - \frac{1}{2})^{2} = \frac{5}{4}$
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Add $\frac{1}{2}$ to both sides.
 $x = x$

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 $x - \frac{1}{2} = \pm \sqrt{\frac{5}{4}}$
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If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

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 $x = \frac{1}{2} \pm \sqrt{\frac{5}{4}} = \frac{1}{2} \pm$

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 $x - \frac{1}{2} = \pm \sqrt{\frac{5}{4}}$
 $x = \frac{1}{2} \pm \sqrt{\frac{5}{4}} = \frac{1}{2} \pm$

If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

 $\sqrt{\frac{5}{4}}$

Step 1: Write the equation in the form $x^2 - dx = f$

- **Step 2 :** Complete the square. Write the equation in the form $(x A)^2 = k$.
- **Step 3 : Apply the square root property. Write the equation in the form**

$$\mathbf{x} - \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Solve each of the following using the complete the square method.

5.
$$x^2 - x - 1 = 0$$

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$$\mathbf{x} - \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Solve each of the following using the complete the square method.

6. $2x^2 - 8x - 3 = 0$

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Solve each of the following using the complete the square method.

6. $2x^2 - 8x - 3 = 0$

Add 3 to both sides.

Solve each of the following using the complete the square method.

6. $2x^2 - 8x - 3 = 0$ $2x^2 - 8x$ Add 3 to both sides.

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Add 3 to both sides.

Solve each of the following using the complete the square method.

6. $2x^2 - 8x - 3 = 0$ $2x^2 - 8x = 3$ Add 3 to both sides. Divide both sides by 2.

Solve each of the following using the complete the square method.

6. $2x^2 - 8x - 3 = 0$ $2x^2 - 8x = 3$ x^2 Add 3 to both sides. Divide both sides by 2.

Solve each of the following using the complete the square method.

6. $2x^2 - 8x - 3 = 0$ $2x^2 - 8x = 3$ $x^2 -$ Add 3 to both sides. Divide both sides by 2.

Solve each of the following using the complete the square method.

6. $2x^2 - 8x - 3 = 0$ $2x^2 - 8x = 3$ $x^2 - 4x$ Add 3 to both sides. Divide both sides by 2.

Solve each of the following using the complete the square method.

6. $2x^2 - 8x - 3 = 0$ $2x^2 - 8x = 3$ $x^2 - 4x =$ Add 3 to both sides. Divide both sides by 2.

Solve each of the following using the complete the square method.

6. $2x^{2} - 8x - 3 = 0$ $2x^{2} - 8x = 3$ $x^{2} - 4x = \frac{3}{2}$ Add 3 to both sides. Divide both sides by 2.

Solve each of the following using the complete the square method.

6.
$$2x^2 - 8x - 3 = 0$$

 $2x^2 - 8x = 3$
 $x^2 - 4x = \frac{3}{2}$

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$$2x^{2} - 8x - 3 = 0$$
$$2x^{2} - 8x = 3$$
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Step 1: Write the equation in the form $x^2 - dx = f$ **Step 2 :** Complete the square. Write the equation in the form $(x - A)^2 = k$.

Solve each of the following using the complete the square method.

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$$2x^{2} - 8x - 3 = 0$$
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Step 1: Write the equation in the form $x^2 - dx = f$ Step 2: Complete the square. Write the equation in the form $(x - A)^2 = k$.Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

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Step 1: Write the equation in the form x² – dx = f
Step 2: Complete the square. Write the equation in the form (x – A)² = k.
Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

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Step 1: Write the equation in the form $x^2 - dx = f$

Step 2 : Complete the square. Write the equation in the form $(x - A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Square A. (This is the term that must be added to '<u>complete the square</u>'.)

Solve each of the following using the complete the square method.

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$$2x^{2} - 8x - 3 = 0$$

 $2x^{2} - 8x = 3$
 $x^{2} - 4x = \frac{3}{2}$
 $x^{2} - 4x$
 $x^{2} - 4x$

Step 1: Write the equation in the form $x^2 - dx = f$

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Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

6.
$$2x^{2} - 8x - 3 = 0$$

 $2x^{2} - 8x = 3$
 $x^{2} - 4x = \frac{3}{2}$
 $x^{2} - 4x + 4$
 $x^{2} - 4x + 4$
 $A = 2$
 $A^{2} = 4$

Step 1: Write the equation in the form $x^2 - dx = f$

Step 2 : Complete the square. Write the equation in the form $(x - A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

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Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

6. $2x^2 - 8x - 3 = 0$	
$2x^2 - 8x = 3$	$x^2 - 2Ax + A^2 = (x - A)^2$
$\mathbf{x}^2 - 4\mathbf{x} = \frac{3}{2}$	2A = 4
$x^{2} - 4x + 4$	$\mathbf{A} = 2$
	$\mathbf{A}^2 = 4$
	Add 4 to both sides.

Step 1: Write the equation in the form $x^2 - dx = f$

Step 2 : Complete the square. Write the equation in the form $(x - A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

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$x^2 - 4x + 4 =$	A = 2
	$A^2 = 4$
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Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

6.
$$2x^{2} - 8x - 3 = 0$$

 $2x^{2} - 8x = 3$
 $x^{2} - 4x = \frac{3}{2}$
 $x^{2} - 4x + 4 = \frac{3}{2}$
 $x^{2} - 4x + 4 = \frac{3}{2}$
 $A = 2$
 $A^{2} = 4$
Add 4 to both sides

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 $A = 2$
 $A^{2} = 4$
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$$2x^{2} - 8x - 3 = 0$$

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Add 4 to both sides.

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 $(x - 2)^{2}$
 $x^{2} - 8x = 3$
 $2A = 4$
 $A = 2$
 $A^{2} = 4$

Add 4 to both sides.

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 $x^{2} - 4x + 4 = \frac{3}{2} + 4$
 $(x - 2)^{2} = \frac{11}{2}$
 $x^{2} - 8x = 3$
 $x^{2} - 2Ax + A^{2} = (x - A)^{2}$
 $2A = 4$
 $A = 2$
 $A^{2} = 4$

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$$(x - 2)^{2} = \frac{11}{2}$$

Step 1: Write the equation in the form $x^2 - dx = f$

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Solve each of the following using the complete the square method.

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If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

$$\sqrt{\frac{11}{2}}$$

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If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

$$\sqrt{\frac{11}{2}} = \sqrt{\frac{22}{4}}$$

Step 1: Write the equation in the form $x^2 - dx = f$

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$$\sqrt{\frac{11}{2}} = \sqrt{\frac{22}{4}} = \frac{\sqrt{22}}{\sqrt{4}}$$

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$$x = \frac{4 \pm \sqrt{22}}{2}$$

If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

$$\sqrt{\frac{11}{2}} = \sqrt{\frac{22}{4}} = \frac{\sqrt{22}}{\sqrt{4}}$$

Step 1: Write the equation in the form $x^2 - dx = f$

- Step 2 : Complete the square. Write the equation in the form $(x A)^2 = k$.
- Step 3 : Apply the square root property. Write the equation in the form

$$\mathbf{x} - \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Solve each of the following using the complete the square method.

6.
$$2x^{2} - 8x - 3 = 0$$
$$2x^{2} - 8x = 3$$
$$x^{2} - 4x = \frac{3}{2}$$
$$x^{2} - 4x + 4 = \frac{3}{2} + 4$$
$$(x - 2)^{2} = \frac{11}{2}$$
$$x - 2 = \pm \sqrt{\frac{11}{2}}$$
$$x = 2 \pm \sqrt{\frac{11}{2}} = 2 \pm \frac{\sqrt{22}}{2}$$
$$x = \frac{4 \pm \sqrt{22}}{2}$$

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Solve each of the following using the complete the square method.

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$$x^2 - 6x + 3 = 0$$

Solve each of the following using the complete the square method.

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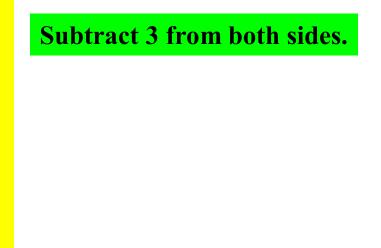
Solve each of the following using the complete the square method.

7. $x^2 - 6x + 3 = 0$

6x + 3 = 0 Subtract 3 from both sides.

Solve each of the following using the complete the square method.

7. $x^2 - 6x + 3 = 0$ $x^2 - 6x$



Solve each of the following using the complete the square method.

7. $x^2 - 6x + 3 = 0$ $x^2 - 6x =$

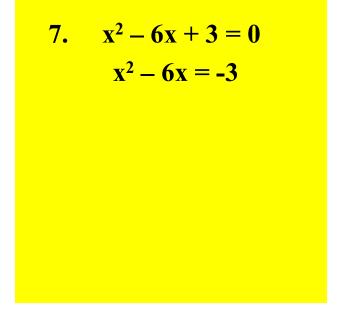
Subtract 3 from both sides.

Solve each of the following using the complete the square method.

7. $x^2 - 6x + 3 = 0$ $x^2 - 6x = -3$

Subtract 3 from both sides.

Solve each of the following using the complete the square method.



Step 1: Write the equation in the form $x^2 - dx = f$

Solve each of the following using the complete the square method.

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$$x^2 - 6x + 3 = 0$$

 $x^2 - 6x = -3$

Step 1: Write the equation in the form $x^2 - dx = f$

Step 2 : Complete the square. Write the equation in the form $(x - A)^2 = k$.

Solve each of the following using the complete the square method.

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$$x^2 - 6x + 3 = 0$$

 $x^2 - 6x = -3$
 $x^2 - 6x$

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Solve each of the following using the complete the square method.

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 $x^{2} - 6x$
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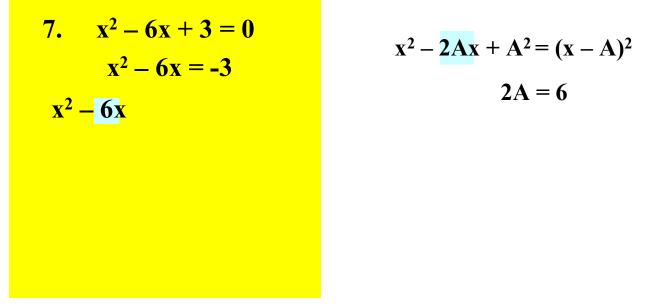
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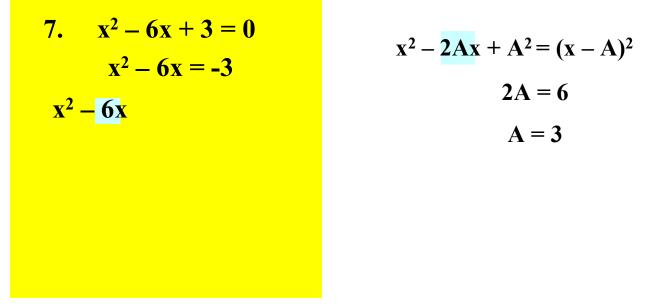
Solve each of the following using the complete the square method.



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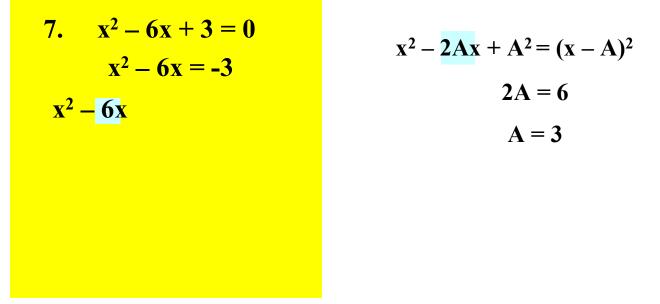
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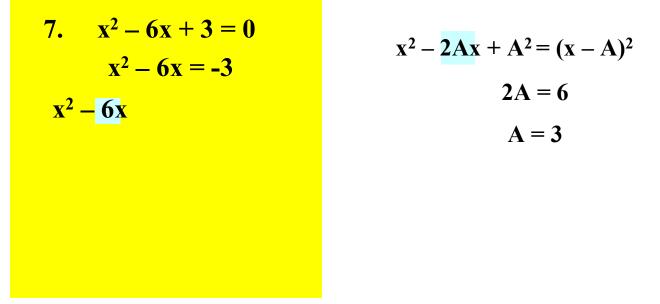
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Solve each of the following using the complete the square method.



Step 1: Write the equation in the form $x^2 - dx = f$

Step 2 : Complete the square. Write the equation in the form $(x - A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

7.
$$x^{2} - 6x + 3 = 0$$

 $x^{2} - 6x = -3$
 $x^{2} - 6x$
 $x^{2} - 6x$
 $x^{2} - 2Ax + A^{2} = (x - A)^{2}$
 $2A = 6$
 $A = 3$
 $A^{2} = 9$

Step 1: Write the equation in the form $x^2 - dx = f$

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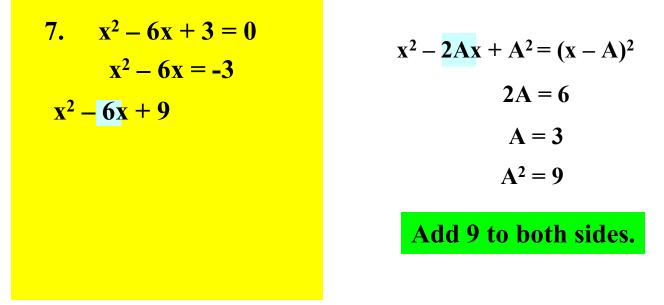
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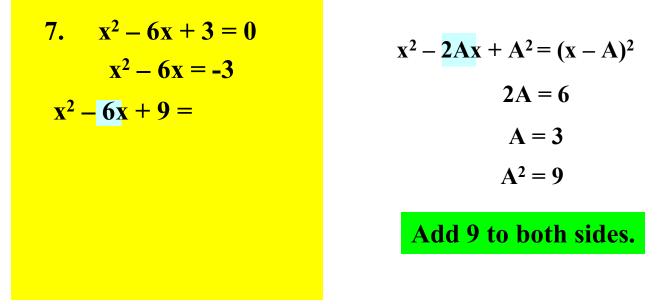


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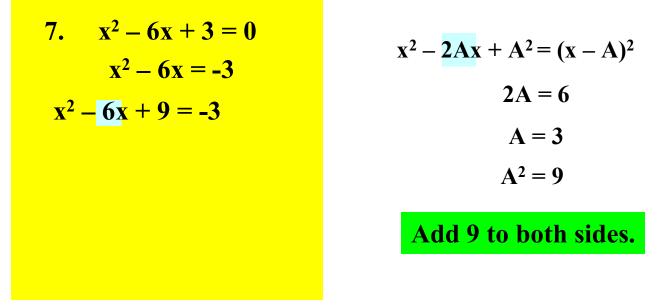


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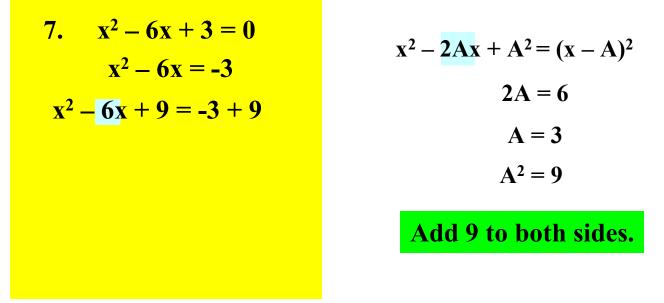


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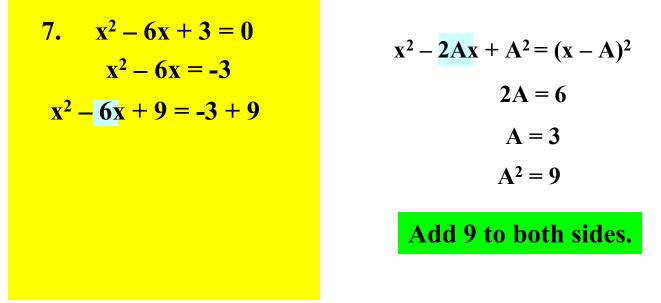


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Solve each of the following using the complete the square method.

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$$x^{2} - 6x + 3 = 0$$

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 $x^{2} - 6x + 9 = -3 + 9$
 $(x - 3)^{2}$
 $x^{2} - 6x + 9 = -3 + 9$
 $A = 3$
 $A^{2} = 9$
Add 9 to both sides.

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The Square Root PropertyIf $N^2 = k$ and k > 0,then $N = \pm \sqrt{k}$.

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 $x^2 - 6x + 9 = -3 + 9$
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 $x - 3 = \pm \sqrt{6}$
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If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

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Solve each of the following using the complete the square method.

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If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

The solution is already in standard radical form.

- **Step 1:** Write the equation in the form $x^2 dx = f$
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- **Step 4 :** Solve for x. Write the equation in the form $x = A \pm \sqrt{k}$
- **Step 5 : Express the solutions in 'best from'.**

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- **Step 2 :** Complete the square. Write the equation in the form $(x A)^2 = k$.
- Step 3 : Apply the square root property. Write the equation in the form $x A = \pm \sqrt{k}$
- **Step 4 :** Solve for x. Write the equation in the form $x = A \pm \sqrt{k}$
- **Step 5 : Express the solutions in 'best from'.**

Solve each of the following using the complete the square method.

8. $x^2 + 5x + 6 = 0$

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Solve each of the following using the complete the square method.

8. $x^2 + 5x + 6 = 0$ Subtract 6 from both sides.

Solve each of the following using the complete the square method.

8. $x^2 + 5x + 6 = 0$ $x^2 + 5x$

Subtract 6 from both sides.

Solve each of the following using the complete the square method.

8. $x^2 + 5x + 6 = 0$ $x^2 + 5x =$

Subtract 6 from both sides.

Solve each of the following using the complete the square method.

8. $x^2 + 5x + 6 = 0$ $x^2 + 5x = -6$

Subtract 6 from both sides.

Solve each of the following using the complete the square method.

8. $x^2 + 5x + 6 = 0$ $x^2 + 5x = -6$

Solve each of the following using the complete the square method.

8. $x^2 + 5x + 6 = 0$ $x^2 + 5x = -6$

Step 1: Write the equation in the form $x^2 + dx = f$ **Step 2 :** Complete the square. Write the equation in the form $(x + A)^2 = k$.

Solve each of the following using the complete the square method.

```
8. x^{2} + 5x + 6 = 0
x^{2} + 5x = -6
x^{2} + 5x
```

Step 1: Write the equation in the form $x^2 + dx = f$ Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Solve each of the following using the complete the square method.

```
8. x^{2} + 5x + 6 = 0
x^{2} + 5x = -6
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Step 1: Write the equation in the form $x^2 + dx = f$

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Solve each of the following using the complete the square method.

8. $x^{2} + 5x + 6 = 0$ $x^{2} + 5x = -6$ $x^{2} + 5x$ $x^{2} + 5x$ $x^{2} + 5x$

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Solve each of the following using the complete the square method.

8. $x^{2} + 5x + 6 = 0$ $x^{2} + 5x = -6$ $x^{2} + 5x$ $x^{2} + 5x$ $x^{2} + 5x$

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Solve each of the following using the complete the square method.

8. $x^{2} + 5x + 6 = 0$ $x^{2} + 5x = -6$ $x^{2} + 5x$ $x^{2} + 5x$ $x^{2} + 5x$ $x^{2} + 5x$ $x^{2} + 2Ax + A^{2} = (x + A)^{2}$ 2A = 5

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Solve each of the following using the complete the square method.

8. $x^{2} + 5x + 6 = 0$ $x^{2} + 5x = -6$ $x^{2} + 5x$ $x^{2} + 5x$ $x^{2} + 5x$ $x^{2} + 2Ax + A^{2} = (x + A)^{2}$ 2A = 5 $A = \frac{5}{2}$

Step 1: Write the equation in the form $x^2 + dx = f$

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Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x$
 $x^{2} + 5x$
 $x^{2} + 5x$
 $x^{2} + 2Ax + A^{2} = (x + A)^{2}$
 $2A = 5$
 $A = \frac{5}{2}$
 $A^{2} = \frac{25}{4}$

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4}$
 $x^{2} + \frac{25}{4}$
 $x^{2} + 2Ax + A^{2} = (x + A)^{2}$
 $2A = 5$
 $A = \frac{5}{2}$
 $A^{2} = \frac{25}{4}$

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

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$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4}$
 $x^{2} + \frac{25}{4}$
 $x^{2} + \frac{25}{4}$
 $x^{2} + 2Ax + A^{2} = (x + A)^{2}$
 $2A = 5$
 $A = \frac{5}{2}$
 $A^{2} = \frac{25}{4}$

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4}$
 $x^{2} + 5x + \frac{25}{4}$
 $x^{2} + 2Ax + A^{2} = (x + A)^{2}$
 $2A = 5$
 $A = \frac{5}{2}$
 $A^{2} = \frac{25}{4}$
Add $\frac{25}{4}$ to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$ Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} =$
 $x^{2} + 2Ax + A^{2} = (x + A)^{2}$
 $2A = 5$
 $A = \frac{5}{2}$
 $A^{2} = \frac{25}{4}$
Add $\frac{25}{4}$ to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$ Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6$
 $x^{2} + 2Ax + A^{2} = (x + A)^{2}$
 $2A = 5$
 $A = \frac{5}{2}$
 $A^{2} = \frac{25}{4}$
Add $\frac{25}{4}$ to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$ Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $x^{2} + 2Ax + A^{2} = (x + A)^{2}$
 $2A = 5$
 $A = \frac{5}{2}$
 $A^{2} = \frac{25}{4}$
Add $\frac{25}{4}$ to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$ Step 2: Complete the square. Write the equation in the form $(x + A)^2 = k$.

Divide the coefficient of x by 2. (This is the value of A.)

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $x^{2} + 2Ax + A^{2} = (x + A)^{2}$
 $2A = 5$
 $A = \frac{5}{2}$
 $A^{2} = \frac{25}{4}$
Add $\frac{25}{4}$ to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$ Step 2: Complete the square. Write the equation in the form $(x + A)^2 = k$.

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2}$
 $A^{2} = \frac{25}{4}$
Add $\frac{25}{4}$ to both sides.

4

Step 1: Write the equation in the form $x^2 + dx = f$ Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2}$
 $A^{2} = \frac{25}{4}$
 $A^{2} = \frac{25}{4}$
Add $\frac{25}{4}$ to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$ **Step 2 :** Complete the square. Write the equation in the form $(x + A)^2 = k$.

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} =$
 $A^{2} = \frac{25}{4}$
Add $\frac{25}{4}$ to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$ Step 2: Complete the square. Write the equation in the form $(x + A)^2 = k$.

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$
 $x^{2} + 2Ax + A^{2} = (x + A)^{2}$
 $2A = 5$
 $A = \frac{5}{2}$
 $A^{2} = \frac{25}{4}$
Add 25 to both sides

Step 1: Write the equation in the form $x^2 + dx = f$ Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$

Step 1: Write the equation in the form $x^2 + dx = f$

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Solve each of the following using the complete the square method.

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 $(x + \frac{5}{2})^{2} = \frac{1}{4}$

Step 1: Write the equation in the form $x^2 + dx = f$

- **Step 2 :** Complete the square. Write the equation in the form $(x + A)^2 = k$.
- Step 3 : Apply the square root property. Write the equation in the form $x + A = \pm \sqrt{k}$

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$

The Square Root Property If $N^2 = k$ and k > 0, then $N = \pm \sqrt{k}$.

Step 1: Write the equation in the form $x^2 + dx = f$

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$$x^{2} + 5x + 6 = 0$$

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 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$
 $x + \frac{5}{2}$

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 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$
 $x + \frac{5}{2} =$

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$$x^{2} + 5x + 6 = 0$$

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 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$
 $x + \frac{5}{2} = \pm$

The Square Root Property If $N^2 = k$ and k > 0, then $N = \pm \sqrt{k}$.

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Solve each of the following using the complete the square method.

8. $x^{2} + 5x + 6 = 0$ $x^{2} + 5x = -6$ $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$ $(x + \frac{5}{2})^{2} = \frac{1}{4}$ $x + \frac{5}{2} = \pm \sqrt{\frac{1}{4}}$

The Square Root Property If $N^2 = k$ and k > 0, then $N = \pm \sqrt{k}$.

Step 1: Write the equation in the form $x^2 + dx = f$

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 $x + \frac{5}{2} = \pm \sqrt{\frac{1}{4}}$

Step 1: Write the equation in the form $x^2 + dx = f$

Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.

Step 3 : Apply the square root property. Write the equation in the form

$$\mathbf{x} + \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$
 $x + \frac{5}{2} = \pm \sqrt{\frac{1}{4}}$

Step 1: Write the equation in the form $x^2 + dx = f$

- **Step 2 :** Complete the square. Write the equation in the form $(x + A)^2 = k$.
- **Step 3 :** Apply the square root property. Write the equation in the form

$$\mathbf{x} + \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Solve each of the following using the complete the square method.

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$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$
 $x + \frac{5}{2} = \pm \sqrt{\frac{1}{4}}$
Add $\frac{-5}{2}$ to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$

- **Step 2 :** Complete the square. Write the equation in the form $(x + A)^2 = k$.
- **Step 3 : Apply the square root property. Write the equation in the form**

$$\mathbf{x} + \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Solve each of the following using the complete the square method.

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$$x^{2} + 5x + 6 = 0$$

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 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$
 $x + \frac{5}{2} = \pm \sqrt{\frac{1}{4}}$
Add $\frac{-5}{2}$ to both sides.
 $x =$

Step 1: Write the equation in the form $x^2 + dx = f$

- Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.
- **Step 3 :** Apply the square root property. Write the equation in the form

$$\mathbf{x} + \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$
 $x + \frac{5}{2} = \pm \sqrt{\frac{1}{4}}$
 $x = \frac{-5}{2}$
Add $\frac{-5}{2}$ to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$

- Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.
- **Step 3 :** Apply the square root property. Write the equation in the form

$$\mathbf{x} + \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$
 $x + \frac{5}{2} = \pm \sqrt{\frac{1}{4}}$
 $x = \frac{-5}{2} \pm$
Add $\frac{-5}{2}$ to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$

- Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.
- **Step 3 :** Apply the square root property. Write the equation in the form

$$\mathbf{x} + \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Solve each of the following using the complete the square method.

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$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$
 $x + \frac{5}{2} = \pm \sqrt{\frac{1}{4}}$
 $x = \frac{-5}{2} \pm \sqrt{\frac{1}{4}}$
Add $\frac{-5}{2}$ to both sides.

Step 1: Write the equation in the form $x^2 + dx = f$

- Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.
- **Step 3 :** Apply the square root property. Write the equation in the form

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Solve each of the following using the complete the square method.

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$$x^{2} + 5x + 6 = 0$$

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 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$
 $x + \frac{5}{2} = \pm \sqrt{\frac{1}{4}}$
 $x = \frac{-5}{2} \pm \sqrt{\frac{1}{4}}$

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Solve each of the following using the complete the square method.

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 $(x + \frac{5}{2})^{2} = \frac{1}{4}$
 $x + \frac{5}{2} = \pm \sqrt{\frac{1}{4}}$
 $x = \frac{-5}{2} \pm \sqrt{\frac{1}{4}}$

Step 1: Write the equation in the form $x^2 + dx = f$

- **Step 2 :** Complete the square. Write the equation in the form $(x + A)^2 = k$.
- Step 3 : Apply the square root property. Write the equation in the form

$$\mathbf{x} + \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Step 4 : Solve for x. Write the equation in the form $x = -A \pm \sqrt{k}$ **Step 5 :** Express the solutions in 'best from'.

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$
 $x + \frac{5}{2} = \pm \sqrt{\frac{1}{4}}$
 $x = \frac{-5}{2} \pm \sqrt{\frac{1}{4}}$

If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

Step 1: Write the equation in the form $x^2 + dx = f$

- Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.
- **Step 3 : Apply the square root property. Write the equation in the form**

$$\mathbf{x} + \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$
 $x + \frac{5}{2} = \pm \sqrt{\frac{1}{4}}$
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If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

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$$\mathbf{x} + \mathbf{A} = \pm \sqrt{\mathbf{k}}$$

Solve each of the following using the complete the square method.

8.
$$x^{2} + 5x + 6 = 0$$

 $x^{2} + 5x = -6$
 $x^{2} + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
 $(x + \frac{5}{2})^{2} = \frac{1}{4}$
 $x + \frac{5}{2} = \pm \sqrt{\frac{1}{4}}$
 $x = \frac{-5}{2} \pm \sqrt{\frac{1}{4}} =$

If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

Step 1: Write the equation in the form $x^2 + dx = f$

- Step 2 : Complete the square. Write the equation in the form $(x + A)^2 = k$.
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Solve each of the following using the complete the square method.

8.
$$x^2 + 5x + 6 = 0$$

 $x^2 + 5x = -6$
 $x^2 + 5x + \frac{25}{4} = -6 + \frac{25}{4}$
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Solve each of the following using the complete the square method.

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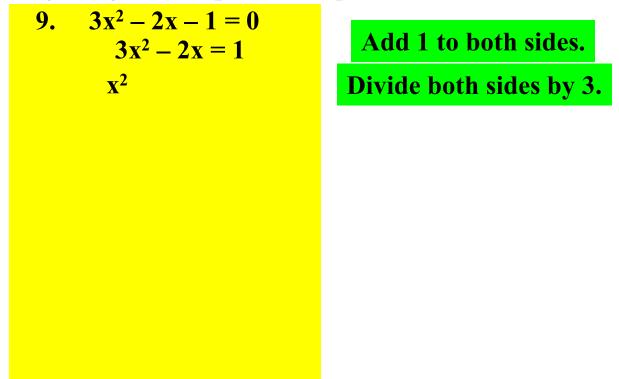
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Divide the coefficient of x by 2. (This is the value of A.)

Square A. (This is the term that must be added to '<u>complete the square</u>'.)

Solve each of the following using the complete the square method.

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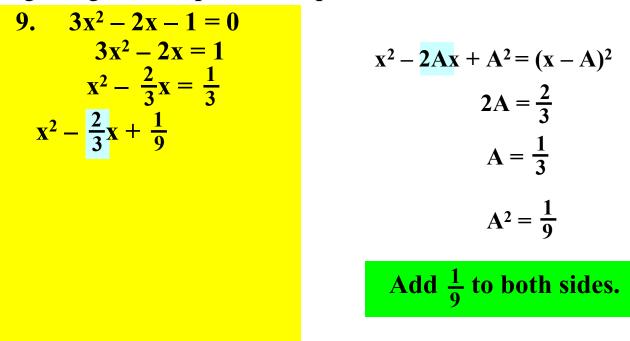
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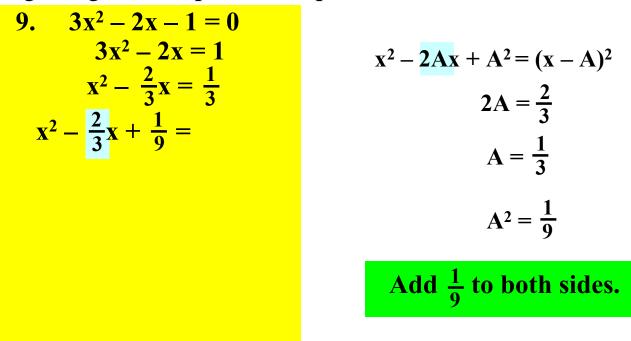
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The Square Root Property If $N^2 = k$ and k > 0, then $N = \pm \sqrt{k}$.

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If the radicand is a perfect square, then evaluate the square root. If the radicand is not a perfect square, then express the solutions in <u>standard radical form</u>.

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