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

Complete the Square

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Consider the following problems.

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$(x + 5)^2 =$

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$(x + 5)^2 =$

$= (x + 5)(x + 5)$

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

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

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Consider the following problems.

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

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

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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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These are '<u>perfect square trinomials</u>'.

Complete the Square

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These are '<u>perfect square trinomials</u>'.

(trinomials that are perfect squares)

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Consider the following problems.

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These equations can be written in reverse order.

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Given the first two terms of any perfect square trinomial,

Complete the Square

Consider the following problems.

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

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

Complete the Square

Consider the following problems.

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

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

Complete the Square

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Consider the following problems.

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

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

$2A = 14 \xrightarrow{\text{Divide by 2.}} A = 7 \xrightarrow{\text{Square it.}} A^2 = 49$

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Complete the Square

Consider the following problems.

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$2A = 12 \rightarrow A = 6$

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Divide by 2.

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

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

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

$x^2 - 12x$

Divide by 2.

$2A = 12 \rightarrow A = 6 \rightarrow A^2 = 36$

Square it.

Step 1: Divide the coefficient of x by 2. (This is the value of A.)

Step 2: Square A.

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$$x^2 - 12x + 36$$

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Complete the Square

Consider the following problems.

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

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$$x^2 - 9x$$

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

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

$$x^2 - 9x$$

$$2A = 9 \rightarrow A = \frac{9}{2} \rightarrow A^2 = \frac{81}{4}$$

Divide by 2.

Square it.

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$ax^2 + bx + c = 0$ where $a \neq 0$.

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You have solved second degree equations (also called quadratic equations) using the factoring method. This only works if the trinomial, $ax^2 + bx + c$, is 'factorable'. You have also solved second degree equations using the square root property.

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Algebra I Class Worksheet #4 Unit 13

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Add 12 to both sides.

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Add 4 to both sides.

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$$x^2 + 4x + 4 = 12 + 4$$

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$x^2 + 4x + 4 = 12 + 4$

$(x + 2)^2 = 16$

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

$2A = 4$

$A = 2$

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

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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

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

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$x^2 + 4x + 4 = 12 + 4$

$(x + 2)^2 = 16$

<u>The Square Root Property</u>

If $N^2 = k$ and $k > 0$,

then $N = \pm\sqrt{k}$.

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 4x = 12$

$x^2 + 4x + 4 = 12 + 4$

$(x + 2)^2 = 16$

$x + 2$

The Square Root Property

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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

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

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

Algebra I Class Worksheet #4 Unit 13

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$$x^2 + 4x = 12$$

$$x^2 + 4x + 4 = 12 + 4$$

$$(x + 2)^2 = 16$$

$$x + 2 = \pm\sqrt{16}$$

Add -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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Algebra I Class Worksheet #4 Unit 13

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Add -2 to both sides.

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$$x = -2 \pm$$

Add -2 to both sides.

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**

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

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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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$x = -2$

If the radicand is a perfect square, then evaluate the square root.

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$x = -2 +$

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$$x + 2 = \pm\sqrt{16}$$

$$x = -2 \pm \sqrt{16}$$

$$x = -2 + 4$$

If the radicand is a perfect square, then evaluate the square root.

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$x = -2 \pm \sqrt{16}$

$x = -2 + 4$ **or**

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$(x + 2)^2 = 16$

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$x = -2 \pm \sqrt{16}$

$x = -2 + 4$ or $x =$

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$$x = -2 \pm \sqrt{16}$$

$$x = -2 + 4 \quad \text{or} \quad x = -2 - 4$$

$$x = 2$$

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$$x = -2 \pm \sqrt{16}$$

$$x = -2 + 4 \quad \text{or} \quad x = -2 - 4$$

$$x = 2 \quad \text{or}$$

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$$x + 2 = \pm\sqrt{16}$$

$$x = -2 \pm \sqrt{16}$$

$$x = -2 + 4 \text{ or } x = -2 - 4$$

$$x = 2 \text{ or } x =$$

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

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$$x + 2 = \pm\sqrt{16}$$

$$x = -2 \pm \sqrt{16}$$

$$x = -2 + 4 \quad \text{or} \quad x = -2 - 4$$

$$x = 2 \quad \text{or} \quad x = -6$$

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

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

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

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$$(x + 2)^2 = 16$$

$$x + 2 = \pm\sqrt{16}$$

$$x = -2 \pm \sqrt{16}$$

$$x = -2 + 4 \text{ or } x = -2 - 4$$

$$x = 2 \text{ or } x = -6$$

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$$x = -2 \pm \sqrt{16}$$

$$x = -2 + 4 \quad \text{or} \quad x = -2 - 4$$

$$x = 2 \quad \text{or} \quad x = -6$$

This problem could have been solved using the factoring method.

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$$x = -2 \pm \sqrt{16}$$

$$x = -2 + 4 \text{ or } x = -2 - 4$$

$$x = 2 \text{ or } x = -6$$

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 4x = 12$

$x^2 + 4x + 4 = 12 + 4$

$(x + 2)^2 = 16$

$x + 2 = \pm\sqrt{16}$

$x = -2 \pm \sqrt{16}$

$x = -2 + 4$ or $x = -2 - 4$

$x = 2$ or $x = -6$

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

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

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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Algebra I Class Worksheet #4 Unit 13

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

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

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

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

$$x^2 + 4x - 12 = 0$$
$$(x - 2)(x + 6) = 0$$

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

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

Algebra I Class Worksheet #4 Unit 13

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

$$x^2 + 4x = 12$$

$$x^2 + 4x + 4 = 12 + 4$$

$$(x + 2)^2 = 16$$

$$x + 2 = \pm\sqrt{16}$$

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$$x = -2 + 4 \quad \text{or} \quad x = -2 - 4$$

$$x = 2 \quad \text{or} \quad x = -6$$

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

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

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

$$x - 2 = 0 \text{ or } x + 6 = 0$$

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

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

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Algebra I Class Worksheet #4 Unit 13

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$$x = -2 + 4 \text{ or } x = -2 - 4$$

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

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

$$x - 2 = 0 \text{ or } x + 6 = 0$$

$$x = 2 \text{ or } x = -6$$

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

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Algebra I Class Worksheet #4 Unit 13

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

$x^2 + 4x = 12$

$x^2 + 4x + 4 = 12 + 4$

$(x + 2)^2 = 16$

$x + 2 = \pm\sqrt{16}$

$x = -2 \pm \sqrt{16}$

$x = -2 + 4$ 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 $x + 6 = 0$

$x = 2$ or $x = -6$

You can draw your own conclusions.

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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Algebra I Class Worksheet #4 Unit 13

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

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$$x + 2 = \pm\sqrt{16}$$

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$$x = -2 + 4 \text{ or } x = -2 - 4$$

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

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Algebra I   Class Worksheet   #4   Unit 13

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

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

Algebra I   Class Worksheet   #4   Unit 13

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

Algebra I Class Worksheet #4 Unit 13

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

Add 4 to both sides.

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

Algebra I Class Worksheet #4 Unit 13

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.

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

Algebra I Class Worksheet #4 Unit 13

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.

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

Algebra I Class Worksheet #4 Unit 13

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

$x^2 + 8x = 4$

Add 4 to both sides.

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

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 8x = 4$

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

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 8x = 4$

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

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

Algebra I   Class Worksheet   #4   Unit 13

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

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$x^2 + 8x = 4$

$x^2 + 8x$

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.)

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 8x = 4$

$x^2 + 8x$

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

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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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.)

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 8x = 4$

$x^2 + 8x$

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

$2A = 8$

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.)

Algebra I Class Worksheet #4 Unit 13

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

$x^2 + 8x = 4$

$x^2 + 8x$

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

$2A = 8$

$A = 4$

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

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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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>'.)

Algebra I   Class Worksheet   #4   Unit 13

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

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

$x^2 + 8x = 4$

$x^2 + 8x$

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

$2A = 8$

$A = 4$

$A^2 = 16$

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

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

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>'.)

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 8x = 4$

$x^2 + 8x + 16$

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

$2A = 8$

$A = 4$

$A^2 = 16$

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

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

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>'.)

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

$x^2 + 8x = 4$

$x^2 + 8x + 16$

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

$2A = 8$

$A = 4$

$A^2 = 16$

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$x^2 + 8x = 4$

$x^2 + 8x + 16$

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

$2A = 8$

$A = 4$

$A^2 = 16$

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>'.)

Algebra I Class Worksheet #4 Unit 13

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

$2A = 8$

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Add 16 to both sides.

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.)

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Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 8x = 4$

$x^2 + 8x + 16 = 4$

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

$2A = 8$

$A = 4$

$A^2 = 16$

Add 16 to both sides.

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

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Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 8x = 4$

$x^2 + 8x + 16 = 4 + 16$

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

$2A = 8$

$A = 4$

$A^2 = 16$

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>'.)

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

$x^2 + 8x = 4$

$x^2 + 8x + 16 = 4 + 16$

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$x^2 + 8x = 4$

$x^2 + 8x + 16 = 4 + 16$

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

$2A = 8$

$A = 4$

$A^2 = 16$

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

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

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>'.)

Write the trinomial in 'factored form'. $(x + A)^2$

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 8x = 4$

$x^2 + 8x + 16 = 4 + 16$

$(x + 4)^2$

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

$2A = 8$

$A = 4$

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

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$(x + 4)^2$

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$x^2 + 8x = 4$

$x^2 + 8x + 16 = 4 + 16$

$(x + 4)^2 =$

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

$2A = 8$

$A = 4$

$A^2 = 16$

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Write the trinomial in 'factored form'. $(x + A)^2$

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 8x = 4$

$x^2 + 8x + 16 = 4 + 16$

$(x + 4)^2 = 20$

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

$2A = 8$

$A = 4$

$A^2 = 16$

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

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

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>'.)

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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**.

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

$$x^2 + 8x = 4$$

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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

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

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 8x = 4$

$x^2 + 8x + 16 = 4 + 16$

$(x + 4)^2 = 20$

<u>The Square Root Property</u>

If $N^2 = k$ and $k > 0$,

then $N = \pm\sqrt{k}$.

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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Algebra I Class Worksheet #4 Unit 13

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

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$x^2 + 8x + 16 = 4 + 16$

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$x + 4$

The Square Root Property

If $N^2 = k$ and $k > 0$,

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$x^2 + 8x = 4$

$x^2 + 8x + 16 = 4 + 16$

$(x + 4)^2 = 20$

$x + 4 = \pm$

The Square Root Property

If $N^2 = k$ and $k > 0$,

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$x + 4 = \pm\sqrt{20}$

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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

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

Algebra I   Class Worksheet   #4   Unit 13

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

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

$$x^2 + 8x = 4$$

$$x^2 + 8x + 16 = 4 + 16$$

$$(x + 4)^2 = 20$$

$$x + 4 = \pm\sqrt{20}$$

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

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 8x = 4$

$x^2 + 8x + 16 = 4 + 16$

$(x + 4)^2 = 20$

$x + 4 = \pm\sqrt{20}$

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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Algebra I Class Worksheet #4 Unit 13

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$x^2 + 8x + 16 = 4 + 16$

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$x =$

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 $(x + A)^2 = k$.

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Algebra I Class Worksheet #4 Unit 13

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$$x^2 + 8x + 16 = 4 + 16$$

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$$x + 4 = \pm\sqrt{20}$$

$$x = -4$$

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 $(x + A)^2 = k$.

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$$x^2 + 8x + 16 = 4 + 16$$

$$(x + 4)^2 = 20$$

$$x + 4 = \pm\sqrt{20}$$

$$x = -4 \pm$$

Add -4 to both sides.

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

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Algebra I Class Worksheet #4 Unit 13

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Add -4 to both sides.

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Algebra I Class Worksheet #4 Unit 13

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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'.

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 8x = 4$

$x^2 + 8x + 16 = 4 + 16$

$(x + 4)^2 = 20$

$x + 4 = \pm\sqrt{20}$

$x = -4 \pm \sqrt{20}$

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

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

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

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

Algebra I Class Worksheet #4 Unit 13

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$x^2 + 8x = 4$

$x^2 + 8x + 16 = 4 + 16$

$(x + 4)^2 = 20$

$x + 4 = \pm\sqrt{20}$

$x = -4 \pm \sqrt{20}$

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

Algebra I Class Worksheet #4 Unit 13

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

$x^2 + 8x = 4$

$x^2 + 8x + 16 = 4 + 16$

$(x + 4)^2 = 20$

$x + 4 = \pm\sqrt{20}$

$x = -4 \pm \sqrt{20}$

$x =$

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 standard radical form.

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

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

Algebra I Class Worksheet #4 Unit 13

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

$$x^2 + 8x = 4$$

$$x^2 + 8x + 16 = 4 + 16$$

$$(x + 4)^2 = 20$$

$$x + 4 = \pm\sqrt{20}$$

$$x = -4 \pm \sqrt{20}$$

$$x = -4$$

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

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

$$x^2 + 8x = 4$$

$$x^2 + 8x + 16 = 4 + 16$$

$$(x + 4)^2 = 20$$

$$x + 4 = \pm\sqrt{20}$$

$$x = -4 \pm \sqrt{20}$$

$$x = -4 \pm$$

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>.

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 8x = 4$

$x^2 + 8x + 16 = 4 + 16$

$(x + 4)^2 = 20$

$x + 4 = \pm\sqrt{20}$

$x = -4 \pm \sqrt{20}$

$x = -4 \pm$

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>.

$\sqrt{20} =$

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

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

Algebra I   Class Worksheet   #4   Unit 13

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

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

$$x^2 + 8x = 4$$

$$x^2 + 8x + 16 = 4 + 16$$

$$(x + 4)^2 = 20$$

$$x + 4 = \pm\sqrt{20}$$

$$x = -4 \pm \sqrt{20}$$

$$x = -4 \pm$$

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>.

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

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

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

$$x^2 + 8x = 4$$

$$x^2 + 8x + 16 = 4 + 16$$

$$(x + 4)^2 = 20$$

$$x + 4 = \pm\sqrt{20}$$

$$x = -4 \pm \sqrt{20}$$

$$x = -4 \pm 2$$

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>.

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

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

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$$x + 4 = \pm\sqrt{20}$$

$$x = -4 \pm \sqrt{20}$$

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

If the radicand is a perfect square, then evaluate the square root.

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

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$$x^2 + 8x = 4$$

$$x^2 + 8x + 16 = 4 + 16$$

$$(x + 4)^2 = 20$$

$$x + 4 = \pm\sqrt{20}$$

$$x = -4 \pm \sqrt{20}$$

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

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$$x^2 + 8x = 4$$

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$$x + 4 = \pm\sqrt{20}$$

$$x = -4 \pm \sqrt{20}$$

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

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

$$x^2 + 8x = 4$$

$$x^2 + 8x + 16 = 4 + 16$$

$$(x + 4)^2 = 20$$

$$x + 4 = \pm\sqrt{20}$$

$$x = -4 \pm \sqrt{20}$$

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

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

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

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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'.

Algebra I Class Worksheet #4 Unit 13

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

Add 3 to both sides.

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

Algebra I Class Worksheet #4 Unit 13

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

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

$3x^2 + 4x$

Add 3 to both sides.

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

Algebra I Class Worksheet #4 Unit 13

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

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

$3x^2 + 4x =$

Add 3 to both sides.

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

Algebra I Class Worksheet #4 Unit 13

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.

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

Algebra I   Class Worksheet   #4   Unit 13

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.

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

Algebra I   Class Worksheet   #4   Unit 13

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.

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

Algebra I Class Worksheet #4 Unit 13

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.

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

Algebra I Class Worksheet #4 Unit 13

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.

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

Algebra I Class Worksheet #4 Unit 13

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.

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

Algebra I Class Worksheet #4 Unit 13

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.

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

Algebra I   Class Worksheet   #4   Unit 13

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 $x^2 + dx = f$

Algebra I Class Worksheet #4 Unit 13

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

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$$3x^2 + 4x = 3$$

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

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$$3x^2 + 4x = 3$$

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

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

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

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

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

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

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

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

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

Algebra I   Class Worksheet   #4   Unit 13

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

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

$$3x^2 + 4x = 3$$

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

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

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

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.)

Algebra I   Class Worksheet   #4   Unit 13

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

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$3x^2 + 4x = 3$

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

$x^2 + \boxed{\frac{4}{3}}x$

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

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.)

Algebra I Class Worksheet #4 Unit 13

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

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

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

$$2A = \frac{4}{3}$$

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

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

$$2A = \frac{4}{3}$$

$$A = \frac{2}{3}$$

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

$$2A = \frac{4}{3}$$

$$A = \frac{2}{3}$$

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

$3x^2 + 4x = 3$

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

$x^2 + \boxed{\frac{4}{3}}x$

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

$2A = \frac{4}{3}$

$A = \frac{2}{3}$

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

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

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>'.)

Algebra I   Class Worksheet   #4   Unit 13

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

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

$$3x^2 + 4x = 3$$

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

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

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

$$2A = \frac{4}{3}$$

$$A = \frac{2}{3}$$

$$A^2 = \frac{4}{9}$$

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.)

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

Algebra I Class Worksheet #4 Unit 13

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

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

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

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

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Write the trinomial in 'factored form'. $(x + A)^2$

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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>.

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Algebra I Class Worksheet #4 Unit 13

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

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$$x + \frac{2}{3} = \pm\sqrt{\frac{13}{9}}$$

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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 standard radical form.

$$\sqrt{\frac{13}{9}} = \frac{\sqrt{13}}{\sqrt{9}}$$

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4. $x^2 + 3x + 1 = 0$

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4. $x^2 + 3x + 1 = 0$

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

Algebra I Class Worksheet #4 Unit 13

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

4. $x^2 + 3x + 1 = 0$

Subtract 1 from each side.

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.)

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

4. $x^2 + 3x + 1 = 0$

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$2A = 3$

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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>'.)

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$A^2 = \frac{9}{4}$

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$A^2 = \frac{9}{4}$

Add $\frac{9}{4}$ to both sides.

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Algebra I Class Worksheet #4 Unit 13

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

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

$2A = 3$

$A = \frac{3}{2}$

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Add $\frac{9}{4}$ to both sides.

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If $N^2 = k$ and $k > 0$,

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

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

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

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Algebra I Class Worksheet #4 Unit 13

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

4. $x^2 + 3x + 1 = 0$

$$x^2 + 3x = -1$$

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

$$\left(x + \frac{3}{2}\right)^2 = \frac{5}{4}$$

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

Add 1 to both sides.

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

Algebra I Class Worksheet #4 Unit 13

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Algebra I Class Worksheet #4 Unit 13

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

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$x^2 - 1x$

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

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 - 1x = 1$

$x^2 - 1x$

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

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$A = \frac{1}{2}$

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

$$x^2 - 1x = 1$$

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

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Write the trinomial in 'factored form'. $(x - A)^2$

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Write the trinomial in 'factored form'. $(x - A)^2$

Algebra I Class Worksheet #4 Unit 13

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$$x^2 - 1x = 1$$

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

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

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

$$2A = 1$$

$$A = \frac{1}{2}$$

$$A^2 = \frac{1}{4}$$

Add $\frac{1}{4}$ to both sides.

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

$$x = \frac{1 \qquad}{2}$$

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>.

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

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

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

$$x^2 - 1x = 1$$

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

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Algebra I Class Worksheet #4 Unit 13

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

Algebra I Class Worksheet #4 Unit 13

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

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

Add 3 to both sides.

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

Algebra I Class Worksheet #4 Unit 13

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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Algebra I Class Worksheet #4 Unit 13

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.

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

Algebra I Class Worksheet #4 Unit 13

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

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x^2

Add 3 to both sides.

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Add 3 to both sides.

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Algebra I Class Worksheet #4 Unit 13

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$2x^2 - 8x = 3$

$x^2 - 4x$

Add 3 to both sides.

Divide both sides by 2.

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

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$2x^2 - 8x = 3$

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

Add 3 to both sides.

Divide both sides by 2.

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

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

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$2A = 4$

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

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

$x^2 - 4x + 4$

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Add 4 to both sides.

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Write the trinomial in 'factored form'. $(x - A)^2$

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$2x^2 - 8x = 3$

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

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

$(x - 2)^2$

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

$2A = 4$

$A = 2$

$A^2 = 4$

Add 4 to both sides.

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

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

$$(x - 2)^2$$

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

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$$A = 2$$

$$A^2 = 4$$

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

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

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

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

$$2A = 4$$

$$A = 2$$

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

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

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

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

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

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

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

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

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

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

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

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

$x - 2$

The Square Root Property

If $N^2 = k$ and $k > 0$,

then $N = \pm\sqrt{k}$.

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

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

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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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$$x - 2 = \pm\sqrt{\frac{11}{2}}$$

$$x = 2 \pm \sqrt{\frac{11}{2}} = 2$$

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$$x = 2 \pm \sqrt{\frac{11}{2}} = 2 \pm$$

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

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If the radicand is a perfect square, then evaluate the square root.

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

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

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$$x - 2 = \pm\sqrt{\frac{11}{2}}$$

$$x = 2 \pm \sqrt{\frac{11}{2}} = 2 \pm \frac{\sqrt{22}}{}$$

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$$x = 2 \pm \sqrt{\frac{11}{2}} = 2 \pm \frac{\sqrt{22}}{2}$$

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$$x = 2 \pm \sqrt{\frac{11}{2}} = 2 \pm \frac{\sqrt{22}}{2}$$

$$x = \frac{4}{2}$$

If the radicand is a perfect square, then evaluate the square root.

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

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

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

$$x - 2 = \pm\sqrt{\frac{11}{2}}$$

$$x = 2 \pm \sqrt{\frac{11}{2}} = 2 \pm \frac{\sqrt{22}}{2}$$

$$x = \frac{4 \pm \quad}{2}$$

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

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

$$2x^2 - 8x = 3$$

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

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

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

$$x - 2 = \pm\sqrt{\frac{11}{2}}$$

$$x = 2 \pm \sqrt{\frac{11}{2}} = 2 \pm \frac{\sqrt{22}}{2}$$

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

If the radicand is a perfect square, then evaluate the square root.

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

$$2x^2 - 8x = 3$$

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

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

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

$$x - 2 = \pm\sqrt{\frac{11}{2}}$$

$$x = 2 \pm \sqrt{\frac{11}{2}} = 2 \pm \frac{\sqrt{22}}{2}$$

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

$$2x^2 - 8x = 3$$

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

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

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

$$x - 2 = \pm\sqrt{\frac{11}{2}}$$

$$x = 2 \pm \sqrt{\frac{11}{2}} = 2 \pm \frac{\sqrt{22}}{2}$$

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

$$2x^2 - 8x = 3$$

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

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

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

$$x - 2 = \pm\sqrt{\frac{11}{2}}$$

$$x = 2 \pm \sqrt{\frac{11}{2}} = 2 \pm \frac{\sqrt{22}}{2}$$

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

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Algebra I Class Worksheet #4 Unit 13

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

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

Algebra I   Class Worksheet   #4   Unit 13

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

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

Algebra I   Class Worksheet   #4   Unit 13

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

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

Subtract 3 from both sides.

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

Algebra I Class Worksheet #4 Unit 13

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.

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

Algebra I Class Worksheet #4 Unit 13

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.

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

Algebra I Class Worksheet #4 Unit 13

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.

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

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 - 6x = -3$

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**.

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

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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 $(x - A)^2 = k$.

Algebra I Class Worksheet #4 Unit 13

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$x^2 - 6x = -3$

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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 $(x - A)^2 = k$.

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

Algebra I   Class Worksheet   #4   Unit 13

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

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

$x^2 - 6x = -3$

$x^2 - 6x$

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

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

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

$x^2 - 6x = -3$

$x^2 - 6x$

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

$2A = 6$

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

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

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.)

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

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$x^2 - 6x = -3$

$x^2 - 6x$

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

$2A = 6$

$A = 3$

$A^2 = 9$

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

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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$x^2 - 6x = -3$

$x^2 - 6x + 9$

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

$2A = 6$

$A = 3$

$A^2 = 9$

Add 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.)

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

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Algebra I   Class Worksheet   #4   Unit 13

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$x^2 - 6x + 9 = -3 + 9$

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$A = 3$

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Add 9 to both sides.

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.)

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

Write the trinomial in 'factored form'. $(x - A)^2$

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 - 6x = -3$

$x^2 - 6x + 9 = -3 + 9$

$(x - 3)^2$

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

$2A = 6$

$A = 3$

$A^2 = 9$

Add 9 to both sides.

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

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Add 9 to both sides.

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

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Write the trinomial in 'factored form'. $(x - A)^2$

Algebra I Class Worksheet #4 Unit 13

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$x^2 - 6x = -3$

$x^2 - 6x + 9 = -3 + 9$

$(x - 3)^2 = 6$

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

$2A = 6$

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Add 9 to both sides.

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

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Algebra I Class Worksheet #4 Unit 13

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

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$x^2 - 6x + 9 = -3 + 9$

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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 $(x - A)^2 = k$.

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 - 6x = -3$

$x^2 - 6x + 9 = -3 + 9$

$(x - 3)^2 = 6$

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 - 6x = -3$

$x^2 - 6x + 9 = -3 + 9$

$(x - 3)^2 = 6$

The Square Root Property

If $N^2 = k$ and $k > 0$,

then $N = \pm\sqrt{k}$.

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

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

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Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 - 6x = -3$

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$(x - 3)^2 = 6$

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If $N^2 = k$ and $k > 0$,

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

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$x^2 - 6x + 9 = -3 + 9$

$(x - 3)^2 = 6$

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The Square Root Property

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

$x^2 - 6x = -3$

$x^2 - 6x + 9 = -3 + 9$

$(x - 3)^2 = 6$

$x - 3 = \pm$

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If $N^2 = k$ and $k > 0$,

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

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

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

$$x^2 - 6x + 9 = -3 + 9$$

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

$$x - 3 = \pm\sqrt{6}$$

<u>The Square Root Property</u>

If $N^2 = k$ and $k > 0$,

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

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

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

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$x^2 - 6x = -3$

$x^2 - 6x + 9 = -3 + 9$

$(x - 3)^2 = 6$

$x - 3 = \pm\sqrt{6}$

Add 3 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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$$x - A = \pm\sqrt{k}$$

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

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 - 6x = -3$

$x^2 - 6x + 9 = -3 + 9$

$(x - 3)^2 = 6$

$x - 3 = \pm\sqrt{6}$

$x = 3$

Add 3 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

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

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

Algebra I Class Worksheet #4 Unit 13

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$x^2 - 6x + 9 = -3 + 9$

$(x - 3)^2 = 6$

$x - 3 = \pm\sqrt{6}$

$x = 3 \pm$

Add 3 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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Algebra I Class Worksheet #4 Unit 13

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$x = 3 \pm \sqrt{6}$

Add 3 to both sides.

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

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

Algebra I Class Worksheet #4 Unit 13

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$x - 3 = \pm\sqrt{6}$

$x = 3 \pm \sqrt{6}$

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

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

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Algebra I Class Worksheet #4 Unit 13

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

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

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

$$x - 3 = \pm\sqrt{6}$$

$$x = 3 \pm \sqrt{6}$$

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

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

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$$x - 3 = \pm\sqrt{6}$$

$$x = 3 \pm \sqrt{6}$$

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 standard radical form.

The solution is already in standard radical form.

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

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

Algebra I   Class Worksheet   #4   Unit 13

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Algebra I Class Worksheet #4 Unit 13

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

$$x^2 - 6x + 9 = -3 + 9$$

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

$$x - 3 = \pm\sqrt{6}$$

$$\boxed{x = 3 \pm \sqrt{6}}$$

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

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

Subtract 6 from both sides.

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

Algebra I Class Worksheet #4 Unit 13

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.

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

Algebra I Class Worksheet #4 Unit 13

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.

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

Algebra I Class Worksheet #4 Unit 13

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.

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

Algebra I   Class Worksheet   #4   Unit 13

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

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

$\mathbf{x^2 + 5x = -6}$

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

Algebra I   Class Worksheet   #4   Unit 13

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 $(x + A)^2 = k$.

Algebra I Class Worksheet #4 Unit 13

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.)

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 5x = -6$

$x^2 + 5x$

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

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

$x^2 + 5x = -6$

$x^2 + 5x$

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

$2A = 5$

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

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

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

Algebra I Class Worksheet #4 Unit 13

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$x^2 + 5x = -6$

$x^2 + 5x$

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

$2A = 5$

$A = \frac{5}{2}$

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

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.)

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

Algebra I   Class Worksheet   #4   Unit 13

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

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

$x^2 + 5x = -6$

$x^2 + 5x$

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

$2A = 5$

$A = \frac{5}{2}$

$A^2 = \frac{25}{4}$

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.)

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

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 5x = -6$

$x^2 + 5x + \frac{25}{4}$

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

$2A = 5$

$A = \frac{5}{2}$

$A^2 = \frac{25}{4}$

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>'.)

Algebra I Class Worksheet #4 Unit 13

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

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$x^2 + 5x = -6$

$x^2 + 5x + \frac{25}{4}$

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

$2A = 5$

$A = \frac{5}{2}$

$A^2 = \frac{25}{4}$

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.)

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$$x^2 + 5x + \frac{25}{4}$$

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

$$2A = 5$$

$$A = \frac{5}{2}$$

$$A^2 = \frac{25}{4}$$

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.)

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

Algebra I Class Worksheet #4 Unit 13

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.)

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

Algebra I Class Worksheet #4 Unit 13

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.)

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

Algebra I Class Worksheet #4 Unit 13

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.)

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

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

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

$2A = 5$

$A = \frac{5}{2}$

$A^2 = \frac{25}{4}$

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.)

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

Write the trinomial in 'factored form'. $(x + A)^2$

Algebra I Class Worksheet #4 Unit 13

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

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

$x^2 + 5x = -6$

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

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

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

$2A = 5$

$A = \frac{5}{2}$

$A^2 = \frac{25}{4}$

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.)

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

Write the trinomial in 'factored form'. $(x + A)^2$

Algebra I Class Worksheet #4 Unit 13

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

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

$$x^2 + 5x = -6$$

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

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

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

$$2A = 5$$

$$A = \frac{5}{2}$$

$$A^2 = \frac{25}{4}$$

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.)

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

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

$$x^2 + 5x = -6$$

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

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

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

$$2A = 5$$

$$A = \frac{5}{2}$$

$$A^2 = \frac{25}{4}$$

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.)

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

Write the trinomial in 'factored form'. $(x + A)^2$

Algebra I   Class Worksheet   #4   Unit 13

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 $\frac{25}{4}$ 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.)

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

Write the trinomial in 'factored form'. $(x + A)^2$

Algebra I Class Worksheet #4 Unit 13

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

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

$$x^2 + 5x = -6$$

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

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

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

$$x^2 + 5x = -6$$

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

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

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

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

Algebra I Class Worksheet #4 Unit 13

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 $x^2 + dx = f$

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

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

Algebra I Class Worksheet #4 Unit 13

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

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

$$x^2 + 5x = -6$$

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

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

$$x + \frac{5}{2}$$

The Square Root Property

If $N^2 = k$ and $k > 0$,

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Algebra I Class Worksheet #4 Unit 13

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

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Algebra I Class Worksheet #4 Unit 13

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

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

$$x^2 + 5x = -6$$

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

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

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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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Algebra I Class Worksheet #4 Unit 13

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

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Add 1 to both sides.

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Add 1 to both sides.

Divide both sides by 3.

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

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$x^2 - \frac{2}{3}x$

Add 1 to both sides.

Divide both sides by 3.

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

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Algebra I Class Worksheet #4 Unit 13

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

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Good luck on your homework !!

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