Name _____ Date _____ Class _____

LESSON 5-4

Practice A

Completing the Square

Solve each equation using square roots.
The first one is done for you.

1. $(x + 1)^2 = 9$

$x + 1 = \sqrt{9}$

$x + 1 = \pm 3$,
$x = -4$ or 2

2. $(x - 2)^2 = 16$

$x - 2 =$ _____

3. $(x + 3)^2 = 25$

$x + 3 =$ _____

To complete the square of $x^2 + bx$, add $\left(\frac{b}{2}\right)^2$ to the expression.

Write the term needed to complete the square for each expression.

The first one is done for you.

4. $x^2 + 4x$

$\left(\frac{4}{2}\right)^2$

5. $x^2 + 2x$

6. $x^2 - 8x$

Solve each equation by completing the square.

7. $x^2 + 10x = 20$

a. Add $\left(\frac{b}{2}\right)^2$ to each side of the equation. $x^2 + 10x +$ _____ $= 20 +$ _____

b. Simplify. $x^2 + 10x +$ ____ $= 20 +$ ____

c. Factor the square. $(x +$ ____$)(x +$ ____$) =$ ____

d. Take square root of both sides. $x +$ ____ $= \sqrt{\quad}$

e. Solve for x. $x =$ _____

8. $x^2 - 6x - 23 = 0$

9. $x^2 + 13 = -14x$

Name _____ Date _____ Class _____

LESSON 5-4

Practice A

Completing the Square

Solve each equation using square roots.
The first one is done for you.

1. $(x + 1)^2 = 9$

$x + 1 = \underline{\sqrt{9}}$

$x + 1 = \pm 3$, $x = -4$ or 2

2. $(x - 2)^2 = 16$

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

$x - 2 = \pm 4$, $x = -2$ or 6

3. $(x + 3)^2 = 25$

$x + 3 = \underline{\sqrt{25}}$

$x + 3 = \pm 5$, $x = -8$ or 2

To complete the square of $x^2 + bx$, add $\left(\frac{b}{2}\right)^2$ to the expression.

Write the term needed to complete the square for each expression.

The first one is done for you.

4. $x^2 + 4x$

$\left(\frac{4}{2}\right)^2$

5. $x^2 + 2x$

$\left(\frac{2}{2}\right)^2$

6. $x^2 - 8x$

$\left(\frac{-8}{2}\right)^2$

Solve each equation by completing the square.

7. $x^2 + 10x = 20$

a. Add $\left(\frac{b}{2}\right)^2$ to each side of the equation. $x^2 + 10x + \underline{\left(\frac{10}{2}\right)^2} = 20 + \underline{\left(\frac{10}{2}\right)^2}$

b. Simplify. $x^2 + 10x + \underline{25} = 20 + \underline{25}$

c. Factor the square. $(x + \underline{5})(x + \underline{5}) = \underline{45}$

d. Take square root of both sides. $x + \underline{5} = \sqrt{\underline{45}}$

e. Solve for x. $x = \underline{-5 \pm 3\sqrt{5}}$

8. $x^2 - 6x - 23 = 0$

$x = 3 \pm 4\sqrt{2}$

9. $x^2 + 13 = -14x$

$x = -13, -1$