Name _____ Date _____ Class _____

LESSON **Practice B**
5-4 *Completing the Square*

Solve each equation.

1. $2x^2 - 6 = 42$

2. $x^2 - 14x + 49 = 18$

_____

_____

Complete the square for each expression. Write the resulting expression as a binomial squared.

3. $x^2 - 4x +$ ____

4. $x^2 + 12x +$ ____

_____

_____

Solve each equation by completing the square.

5. $2d^2 = 8 + 10d$

6. $x^2 + 2x = 3$

_____

_____

7. $-3x^2 + 18x = -30$

8. $4x^2 = -12x + 4$

_____

_____

Write each function in vertex form, and identify its vertex.

9. $f(x) = x^2 - 6x - 2$

10. $f(x) = x^2 - 4x + 1$

_____

_____

11. $h(x) = 3x^2 - 6x - 15$

12. $f(x) = -2x^2 - 16x + 4$

_____

_____

Solve.

13. Nathan made a triangular pennant for the band booster club. The area of the pennant is 80 square feet. The base of the pennant is 12 feet shorter than the height.

   a. What are the lengths of the base and height of the pennant?

_____

   b. What are the dimensions of the pennant if the base is only 6 feet shorter than the height?

_____

Name _____ Date _____ Class _____

⭐ LESSON **Practice B**
5-4 *Completing the Square*

Solve each equation.

1. $2x^2 - 6 = 42$

$$x = \pm 2\sqrt{6}$$

2. $x^2 - 14x + 49 = 18$

$$x = 7 \pm 3\sqrt{2}$$

Complete the square for each expression. Write the resulting expression as a binomial squared.

3. $x^2 - 4x +$ __4__

$$(x - 2)^2$$

4. $x^2 + 12x +$ __36__

$$(x + 6)^2$$

Solve each equation by completing the square.

5. $2d^2 = 8 + 10d$

$$d = \frac{5}{2} \pm \frac{\sqrt{41}}{2}$$

6. $x^2 + 2x = 3$

$$x = -3, 1$$

7. $-3x^2 + 18x = -30$

$$x = 3 \pm \sqrt{19}$$

8. $4x^2 = -12x + 4$

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

Write each function in vertex form, and identify its vertex.

9. $f(x) = x^2 - 6x - 2$

$$f(x) = (x - 3)^2 - 11; (3, -11)$$

10. $f(x) = x^2 - 4x + 1$

$$g(x) = (x - 2)^2 - 3; (2, -3)$$

11. $h(x) = 3x^2 - 6x - 15$

$$h(x) = 3(x - 1)^2 - 18; (1, -18)$$

12. $f(x) = -2x^2 - 16x + 4$

$$f(x) = -2(x + 4)^2 + 36; (-4, 36)$$

Solve.

13. Nathan made a triangular pennant for the band booster club. The area of the pennant is 80 square feet. The base of the pennant is 12 feet shorter than the height.

   a. What are the lengths of the base and height of the pennant?

$$\text{Base} = 8 \text{ ft, height} = 20 \text{ ft}$$

   b. What are the dimensions of the pennant if the base is only 6 feet shorter than the height?

$$\text{Base} = 10 \text{ ft, height} = 16 \text{ ft}$$

Holt Algebra 2