Name _____ Date _____

9.4 Puzzle Time

What Does A Magician Need When He Loses His Rabbit?

Write the letter of each answer in the box containing the exercise number.

Complete the square for the expression. Then factor the trinomial.

1. $x^2 - 12x$

2. $x^2 + 18x$

3. $x^2 + 7x$

4. $x^2 - 3x$

Solve the equation by completing the square. Round your solutions to the nearest hundredth, if necessary.

5. $x^2 + 12x = 13$

6. $x^2 - 8x = -7$

7. $x^2 + 6x = 16$

8. $x^2 - 4x - 17 = 0$

9. $3x^2 + 30x + 66 = 0$

10. $-4x^2 - 32x + 80 = 0$

Determine whether the quadratic function has a maximum or minimum value. Then find the value.

11. $y = x^2 - 6x + 4$

12. $y = -x^2 - 14x - 36$

13. A ball is thrown from a height of 5 feet with an initial velocity of 32 feet per second. The height h (in feet) after t seconds is represented by the function $h = -16t^2 + 32t + 5$. Find the maximum height of the ball.

Answers

R. $\left(x + \frac{7}{2}\right)^2$

A. $-8, 2$

S. $(x - 6)^2$

T. 21

R. $1, 7$

E. $-2.58, 6.58$

O. $\left(x - \frac{3}{2}\right)^2$

R. minimum; $(3, -5)$

E. $-13, 1$

H. maximum; $(-7, 13)$

R. $-6.73, -3.27$

A. $(x + 9)^2$

E. $-10, 2$

7		12	2	9	5		11	8	1	13	4	6	10	3