Date Completed: _____
Mentor Initials: _____

Factoring Polynomials (Basic)

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Multiple Choice

1. What are the solutions of the quadratic equation $x^2 - x - 6 = 0$?

A) $x = 2$ and $x = -3$
B) $x = -2$ and $x = 3$
C) $x = -6$ and $x = -1$
D) $x = 6$ and $x = 1$

2. $x^2 + 5 = 9$

What is the positive solution to the given equation?

A) 2
B) 3
C) 4
D) 5

3. What are the solutions of the quadratic equation $x^2 + 3x - 28 = 0$?

A) $x = -14$ and $x = 2$
B) $x = -4$ and $x = 7$
C) $x = 4$ and $x = -7$
D) $x = 14$ and $x = -2$

4. If $x^2 - 6x + 9 = 0$, what is the value of $x - 3$?

A) -6
B) -3
C) 0
D) 3

5. $x^2 - 2x - 4 = 0$

What is a solution to the given equation?

A) $-2 + \sqrt{10}$
B) $-1 + \sqrt{5}$
C) $1 + \sqrt{5}$
D) $2 + \sqrt{10}$

6. What are the solutions of the quadratic equation $x^2 - 3x + 2 = 0$?

A) $x = -1$ and $x = -2$
B) $x = 1$ and $x = -2$
C) $x = 1$ and $x = 2$
D) $x = -1$ and $x = 2$

7. What are the solutions of the quadratic equation $12x^2 - 2x - 4 = 0$?

A) $x = \frac{2}{3}$ and $x = -\frac{1}{2}$
B) $x = \frac{1}{3}$ and $x = -\frac{3}{2}$
C) $x = -\frac{2}{3}$ and $x = \frac{1}{2}$
D) $x = \frac{3}{2}$ and $x = -\frac{1}{3}$

8. Which value is a solution to the equation $x(x + 2) = 7$?

A) $1 + 2\sqrt{7}$
B) $1 - 2\sqrt{2}$
C) $-1 + 2\sqrt{7}$
D) $-1 - 2\sqrt{2}$

9. $$x^2 - 8x + d = 0$$

In the equation above, d is a constant such that $0 \leq d < 16$. Which of the following is the lesser of the two solutions to the equation, in terms of d ?

A) $\frac{-8+\sqrt{64-4d}}{2}$
B) $\frac{-8-\sqrt{64-4d}}{2}$
C) $\frac{8+\sqrt{64-4d}}{2}$
D) $\frac{8-\sqrt{64-4d}}{2}$

10. $x^2 + 4x - 6 = 0$

What is a value of x that satisfies the given equation?

A) $-4 - \sqrt{40}$

B) $-2 - \sqrt{10}$

C) $2 - \sqrt{10}$

D) $4 - \sqrt{40}$

Grid-In

11. What is the solution of the quadratic equation $x^2 - 8x - 9 = 0$, given that $x > 0$?

12. What is the solution of the quadratic equation $(x - 1)^2 - 1 = 0$, given that $x > 0$?

13. $3(x - 5)^2 = 27$

What is the larger of the two solutions of the equation shown?

14. What is the solution of the quadratic equation $(x - 3)^2 - 9 = 0$, given that $x > 0$?

15. $x^2 - 5x + 5 = 0$

The solutions to the equation above can be written in the form $\frac{5 \pm \sqrt{d}}{2}$, where d is a constant. What is the value of d ?