Date Completed: _____
Mentor Initials: _____

Factoring Polynomials

Non-Calculator: 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) $x = 2$ and $x = -3$
   D) $x = -2$ and $x = 3$

2. What are the solutions of the quadratic equation $x^2 + 3x - 28 = 0$?
   A) $x = -4$ and $x = -7$
   B) $x = -4$ and $x = 7$
   C) $x = 4$ and $x = -7$
   D) $x = 4$ and $x = 7$

3. What are the solutions of the quadratic equation $x^2 - 4 = 0$?
   A) $x = -2$ and $x = 2$
   B) $x = -4$ and $x = -1$
   C) $x = 4$ and $x = -1$
   D) $x = -2$ and $x = -2$

4. What are the solutions of the quadratic equation $x^4 - 4x^2 + 4 = 0$?
   A) $x = \sqrt{2}$ and $x = -\sqrt{2}$
   B) $x = 2$ and $x = -2$
   C) $x = \sqrt{2}$ and $x = \sqrt{2}$
   D) $x = 2$ and $x = 2$

5. What are the solutions of the quadratic equation $x^2 - 3x + 2 = 0$?
   A) $x = 1$ and $x = -1$
   B) $x = 2$ and $x = 1$
   C) $x = 1$ and $x = 1$
   D) $x = -1$ and $x = -1$

6. In the quadratic equation below, k and q are constants. What are the solutions for x?

$$x^2 - \frac{k}{3}x = 3q$$

A) $x = \frac{k}{6} \pm \frac{\sqrt{k^2+108q}}{6}$

B) $x = \frac{k}{6} \pm \frac{\sqrt{k^2-108q}}{6}$

C) $x = \frac{k}{3} \pm \frac{\sqrt{\frac{1}{9}k^2-27q}}{9}$

D) $x = \frac{k}{9} \pm \frac{\sqrt{\frac{1}{9}k^2-27q}}{9}$

7. In the quadratic equation below, w and z are constants. What are the solutions for x?

$$x^2 - \frac{w}{4}x = -2z$$

A) $x = \frac{k}{2} \pm \frac{\sqrt{\frac{1}{4}w^2-108z}}{2}$

B) $x = \frac{w}{8} \pm \frac{\sqrt{w^2+64z}}{8}$

C) $x = \frac{w}{8} \pm \frac{\sqrt{w^2-128z}}{8}$

D) $x = \frac{w}{2} \pm \frac{\sqrt{w^2-108z}}{2}$

8. In the quadratic equation below, r and s are constants. What are the solutions for x?

$$3x^2 - \frac{r}{2}x = 2s$$

A) $x = \frac{r}{6} \pm \frac{\sqrt{r^2-96s}}{6}$

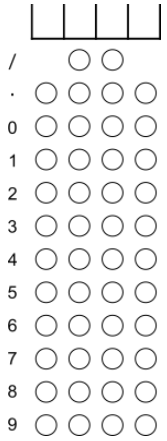
B) $x = -\frac{r}{12} \pm \frac{\sqrt{r^2-96s}}{12}$

C) $x = -\frac{r}{12} \pm \frac{\sqrt{r^2+24s}}{12}$

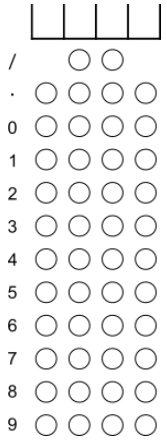
D) $x = \frac{r}{12} \pm \frac{\sqrt{r^2+96s}}{12}$

Non-Calculator: Grid In

9. What is the solution of the quadratic equation $2x^2 + 2x - 4 = 0$, given that $x > 0$?



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



Calculator: Multiple Choice

11. 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) $\frac{1}{2}x = \frac{3}{2}$ and $x = -2$

12. What are the solutions of the quadratic equation $18x^2 + 27x + 9 = 0$?

A) $x = -1$ and $x = -\frac{1}{2}$

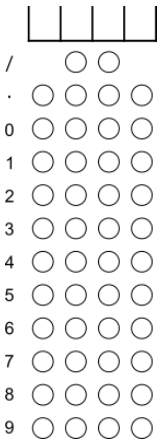
B) $x = -\frac{1}{3}$ and $x = -\frac{3}{2}$

C) $x = \frac{1}{2}$ and $x = 1$

D) $x = \frac{1}{3}$ and $x = \frac{2}{3}$

Calculator: Grid In

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



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