**Solving Quadratic Equations Test – Part 1**

**DO NOT WRITE ON THIS TEST**

**Write the letter of the choice that best completes the statement or answers the question on your answer sheet. (4 points each)**

1. The graph of a quadratic function is shown below.



Which appears to be the solution set for this function?

A. $\left\{2, 4\right\}$ C. $\{-2, 4\}$

B. $\{-4, 2\}$ D. $\{-4, -2\}$

2. Which shows the polynomial $18x^{3}-3x^{2}-3x$ factored completely?

A. $3x(2x-1)(3x-1)$

B. $3x(2x+1)(3x-1)$

C. $3x(2x-1)(3x+1)$

D. $3x(6x+1)(x-3)$

3. Which of the following statements justifies that $x^{2}-3x-18$ is NOT prime over the set of rational numbers?

A. $x^{2}-3x-18$ factored gives $\left(x+3\right)\left(x-6\right)$

B. $x^{2}-3x-18$ factored gives $\left(x-3\right)\left(x+6\right)$

C. $x^{2}-3x-18$ factored gives $(x+9)(x-2)$

D. $x^{2}-3x-18$ cannot be factored

4. Which of the following binomials is a factor of $4x^{2}-16$?

A. $x-2$ C. $2x+8$

B. $x^{2}+4$ D. $2x^{2}-4$

5. Which of these is **prime** over the set of rational numbers?

A. $x^{2}+7x+10$ C. $x^{2}+8x+15$

B. $x^{2}+9x+14$ D. $x^{2}+10x+11$

6. What are the solutions of $x^{2}-25=0$?

A. $\{-5, 5\}$ C. $\{-5, 1\}$

B. $\{5\}$ D. $\{-1, 1\}$

7. Factor the polynomial $27x^{4}y-3x^{2}y$

completely.

A. $3x^{2}y(3x)(3x)$

B. $3x^{2}y(9x^{2}-1)$

C. $3x^{2}(3xy+1)(3xy-1)$

D. $3x^{2}y(3x+1)(3x-1)$

8. An equation and the first step in its solutions are shown below.

$$x^{2}+7x-5=0$$

Step 1: $x^{2}+7x+h=5+h$

What value of *h* should be added to both sides to complete the square?

A. $\frac{5}{2}$ C. $\frac{7}{2}$

B. $\left(\frac{5}{2}\right)^{2}$ D.$ \left(\frac{7}{2}\right)^{2}$

9. Find the roots of the equation $3x^{2}-25=2$.

A. $\{-5, 5\}$ C. $\{2, 3\}$

C. $\{-5.20, 5.20\}$ D. $\{-3, 3\}$

10. What is the solution set of the equation $x^{2}-5x=-5$?

A. $\left\{\frac{5+\sqrt{5}}{2}, \frac{5-\sqrt{5}}{2}\right\}$ C.$ \left\{\frac{-5-\sqrt{5}}{2}, \frac{-5+\sqrt{5}}{2}\right\}$

B. $\{-5, 5\}$ D. $\{0, 5\}$

11. What is the standard form of the equation $2x^{2}-3x+6=x^{2}+5$?

A. $3x^{2}-3x+11=0$ C. $x^{2}-3x+1=0$

B. $x^{2}-3x=-1$ D. $3x^{2}-3x=11$

12. What is the solution set of the equation $x^{2}-3x-4=0$?

A. $\{-1, 4\}$ C. $\{1, 4\}$

B. $\{-4, -1\}$ D. $\{-4, 1\}$

13. What is the solution set of

$\left(x-7\right)\left(2x+8\right)=0$?

A. $\{7, 8\}$ C. $\{7, -8\}$

B. $\{7, 4\}$ D. $\{7, -4\}$

14. What is the solution set of the equation $2x^{2}+3x-4$?

A. $\left\{\frac{-3-\sqrt{41}}{2}, \frac{-3+\sqrt{41}}{2}\right\}$ C.$ \left\{\frac{-3-\sqrt{41}}{4}, \frac{-3+\sqrt{41}}{4}\right\}$

B. $\left\{\frac{3+\sqrt{41}}{2}, \frac{3-\sqrt{41}}{2}\right\}$ D. No real solutions

15. Find the roots of the equation:

$$2x^{2}+x-15=0$$

A. $\left\{-3, \frac{5}{2}\right\}$ C. $\{-3, -\frac{5}{2}\}$

B. $\left\{\frac{5}{2}, 3\right\}$ D. $\left\{-\frac{5}{2}, 3\right\}$

16. What is the value of *c* that should be added to both sides of the following equation to complete the square?

$$x^{2}-20x+c=2+c$$

A. $400$ C. 25

B. 100 D. 20

**Solving Quadratic Equations Test – Part 2**

**Answer each question on your answer sheet. SHOW YOUR WORK for partial credit!**

**Point values are listed after each question.**

1. What is the discriminant formula? (3 pts)

2. What is the quadratic formula? (4 pts)

3. What is the solution set to the equation $2x^{2}-72=0$? (5 pts)

4. What value of *c* should be added to both sides of the following equation to complete the square? (5 pts)

$$p^{2}-14p+c=3+c$$

5. What is the solution set to the equation $p^{2}+16p-22=0?$ (6 pts)

6. What is the solution set to the equation $2x^{2}-3x+6=5$? (7 pts)

7. Look at the following graph:



a. How many roots does the quadratic function have? (2 pts)

b. What are the zeros? (4 pts)