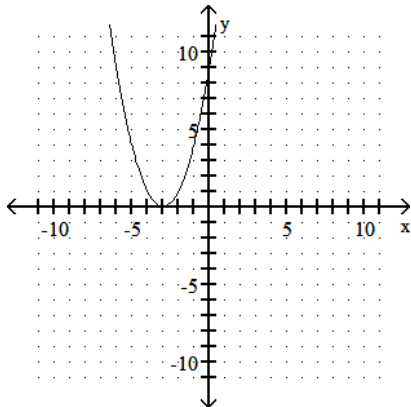


Practice 18.4 & 18.6

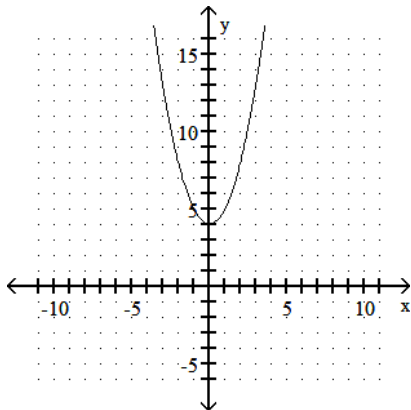
Name _____

The graph of $f(x) = ax^2 + bx + c$ is given in the figure. Determine whether the discriminant is positive, negative, or zero.

1)



2)



Use the discriminant to determine the number of real solutions.

3) $x^2 - 6x - 7 = 0$

4) $x^2 + 4x + 6 = 0$

Use the quadratic formula to find any x-intercepts on the graph of the equation.

5) $5x^2 + 8x + 2 = 0$

6) $2x^2 + 10x = -7$

Solve the equation. Write complex solutions in standard form.

7) $x^2 + x + 9 = 0$

8) $x^2 + 35 = 5x$

9) $4x^2 + 5 = x$

Solve the equation by completing the square.

10) $x^2 + 2x + 4 = 0$

11) $x(6 - x) = 90$

Find the exact solutions to the quadratic equation, using a method of your choice.

12) $3x^2 = 21$

13) $7x^2 - 55x - 8 = 0$

14) $x^2 + 18x + 70 = 0$

15) $6x^2 = -24x - 11$

16) $\frac{3}{4}x^2 + \frac{1}{2}x + \frac{1}{12} = 0$

Use the given substitution to solve the equation.

17) $4x^6 + x^3 - 5 = 0, u = x^3$

18) $2x^{-2} + 5x^{-1} - 3 = 0, u = x^{-1}$

Solve the equation. Find all real solutions.

19) $x - 13\sqrt{x} + 42 = 0$

20) $2(x - 1)^2 + 11(x - 1) + 12 = 0$

Find all complex solutions.

21) $\frac{1}{x - 2} - \frac{1}{x} = -\frac{1}{2}$

Answer Key

Testname: WKS_18.4A_B_18.6

- 1) Zero
- 2) Negative
- 3) Two real solutions
- 4) No real solutions
- 5) $\frac{-4 \pm \sqrt{6}}{5}$
- 6) $\frac{-5 \pm \sqrt{11}}{2}$
- 7) $-\frac{1}{2} \pm i\frac{\sqrt{35}}{2}$
- 8) $\frac{5}{2} \pm i\frac{\sqrt{115}}{2}$
- 9) $\frac{1}{8} \pm i\frac{\sqrt{79}}{8}$
- 10) $-1 \pm i\sqrt{3}$
- 11) $3 \pm 9i$
- 12) $\pm\sqrt{7}$
- 13) $-\frac{1}{7}, 8$
- 14) $-9 \pm \sqrt{11}$
- 15) $\frac{-12 \pm \sqrt{78}}{6}$
- 16) $-\frac{1}{3}$
- 17) $-\sqrt{\frac{5}{4}}, 1$
- 18) $-\frac{1}{3}, 2$
- 19) 36, 49
- 20) $-3, -\frac{1}{2}$
- 21) $1 \pm i\sqrt{3}$