

Accelerated Geom/Alg  
Quadratics Review

Name \_\_\_\_\_'s favorite childhood toy was:

Solve the following equations by factoring, completing the square or taking square roots.

1.  $-2(x-10)^2 + 4 = -16$  1. \_\_\_\_\_

2.  $4(x-3)^2 - 15 = -3$  2. \_\_\_\_\_

3.  $x^2 - 12x + 3 = 0$  3. \_\_\_\_\_

4.  $2x^2 - 8x - 24 = 0$  4. \_\_\_\_\_

5.  $4(x-6)^2 - 10 = 70$  5. \_\_\_\_\_

6.  $x^2 - 14x + 13 = 0$  6. \_\_\_\_\_

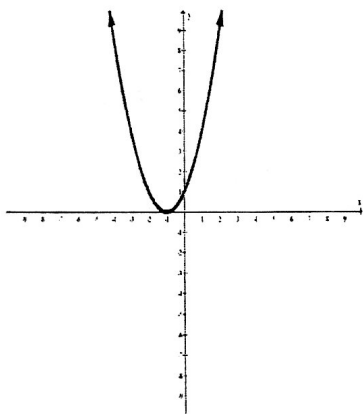
7.  $3x^2 - 30x = -36$  7. \_\_\_\_\_

8. The quadratic equation  $3kx^2 - 6kx + 2 = 0$ ,  $k \neq 0$ , has one real root. Solve for  $k$ .

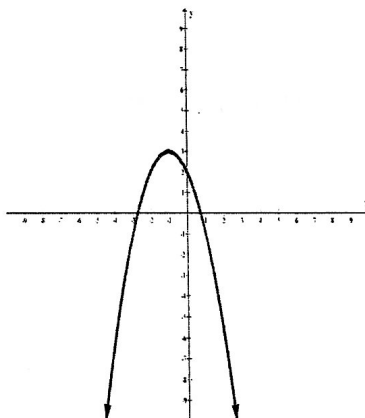
9. The quadratic equation  $f(x) = 2x^2 + 3kx - 1 = 0$  has two real roots with a discriminant of 44. Solve for  $k$ .

10. Decide if the discriminant is positive, negative or 0.

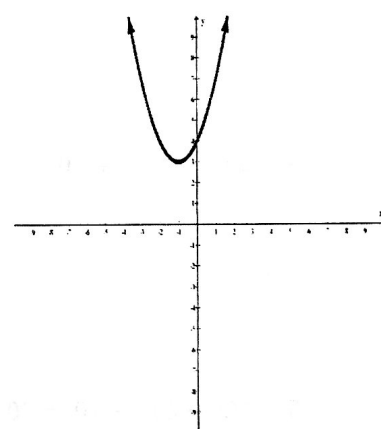
a. Discriminant: \_\_\_\_\_



b. Discriminant: \_\_\_\_\_



c. Discriminant: \_\_\_\_\_



11. The quadratic equation  $g(x) = \left(\frac{1}{2}k + 6\right)x^2 + 2kx + 1$  has one real solution. Solve for  $k$ .

**Solve the following quadratic equations using the Quadratic Formula.**

12.  $3x^2 + 10x = -5$

12. \_\_\_\_\_

13.  $4x^2 - 5x - 6 = 0$

13. \_\_\_\_\_

14.  $x^2 + 8x = 9$

14. \_\_\_\_\_

15.  $3x^2 + 4x - 6 = 0$

15. \_\_\_\_\_

Use the discriminant to determine the number and type of solutions for each quadratic equation.

16.  $4x^2 + 3x - 7 = 0$

17.  $-2x^2 + 5x + 4 = 0$

18.  $3x^2 + 6x + 3 = 0$

Discriminant: \_\_\_\_\_

Discriminant: \_\_\_\_\_

Discriminant: \_\_\_\_\_

# of Solutions: \_\_\_\_\_

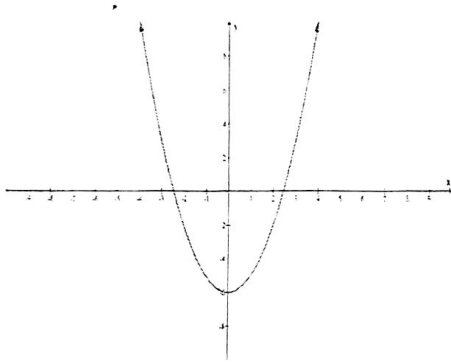
# of Solutions: \_\_\_\_\_

# of Solutions: \_\_\_\_\_

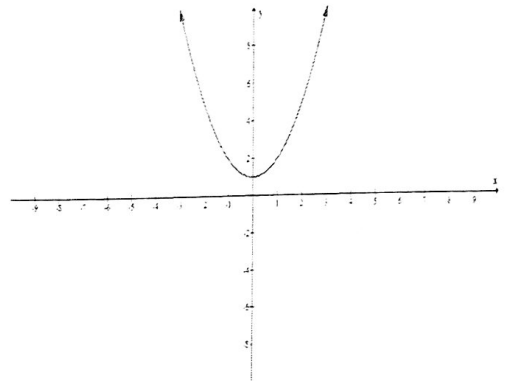
19. Which of the following would have a discriminant = 0? \_\_\_\_\_

20. Which of the following would have a discriminant = a negative number? \_\_\_\_\_

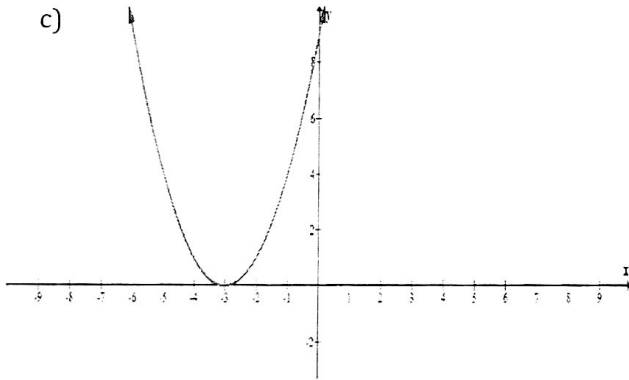
a)



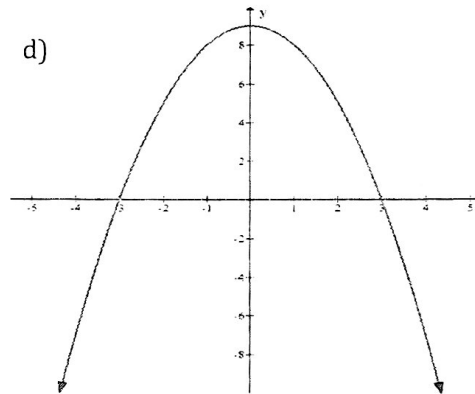
b)



c)

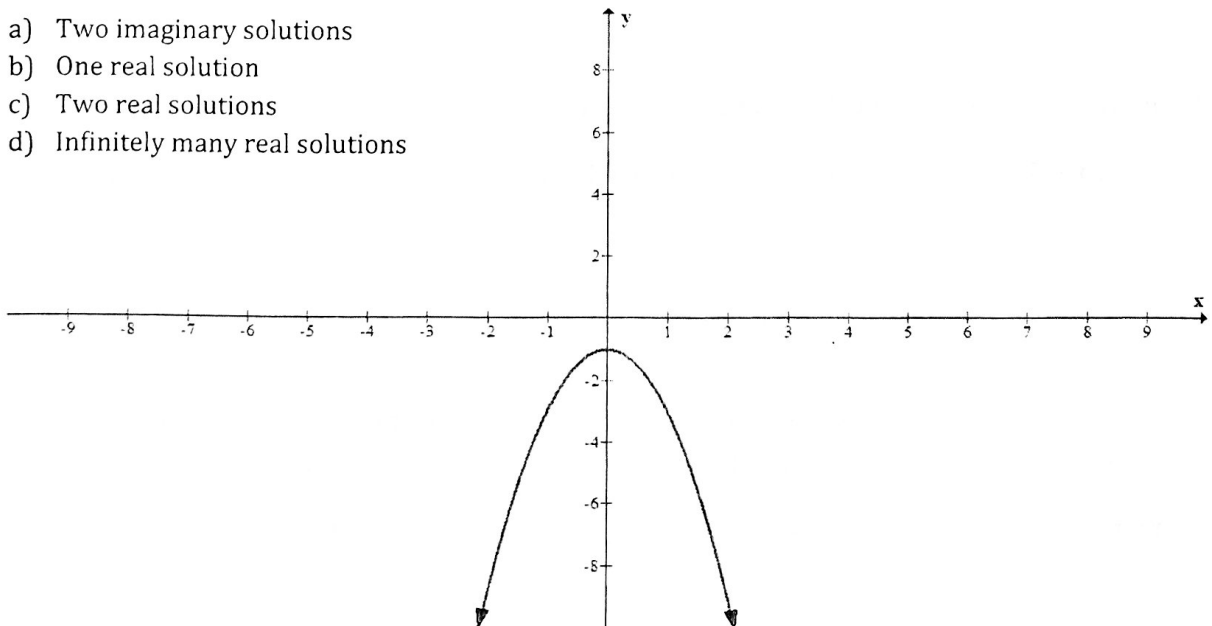


d)



21. How many solutions does the quadratic equation have?

- a) Two imaginary solutions
- b) One real solution
- c) Two real solutions
- d) Infinitely many real solutions



Simplify the following:

21.  $\sqrt{-250}$

22.  $\sqrt{-81}$

23.  $i^{65}$

24.  $\sqrt{-147}$

25.  $i^{180}$

26.  $i^6$

27.  $(7 + 6i) - (3i - 18)$

28.  $(i + 8) + (-4i - 6)$

29.  $(5 + 6i)(-8i - 6)$

30.  $(2 + 5i)(7 - 9i)$

31. Write the complex conjugate of the following:

$10 + 8i$  \_\_\_\_\_

$7 - 5i$  \_\_\_\_\_

$-8i + 4$  \_\_\_\_\_

$9 - 9i$  \_\_\_\_\_

32. Use a complex conjugate to simplify the following and write it in the form  $a \pm bi$ :

$$\frac{6+8i}{9+i}$$

$$\frac{3-9i}{7-3i}$$

Solve the following quadratic equations by any method:

33.  $2x^2 + 6x + 7 = 0$

34.  $x^2 - 8x + 3 = -22$

35.  $4x^2 + 225 = 25$

36.  $-3(x - 1)^2 = 9$