

**Campbell High School
Summer Review Packet
Algebra 2**

You are expected to know the following in order to be successful in Algebra 2:

- Factoring polynomials
 - Factor a trinomial with an "a" value other than 1
 - Factor out a GCF
 - Factor difference-of-squares
 - Solving by factoring
- Solving Literal Equations through multiple-steps
- Graphing linear and quadratic functions
 - Finding Slopes
 - Finding Vertex
- Utilize the graphing calculator
- Knowing and using the quadratic formula
- Solving Systems of Equations
 - Graphically
 - Elimination
 - Substitution

Factor completely.

1. $x^2 + 17x + 60$

2. $x^2 - 2x - 63$

3. $x^2 - 12x - 45$

4. $x^2 - 11x + 28$

5. $x^2 - 25y^2$

6. $4x^3 - 36x^2$

7. $2x^2 - 20x + 50$

8. $-x^2 - 12x - 36$

9. $3x^2 + 17x - 28$

10. $15x^2 - 2x - 24$

11. $16x^2 + 24x + 9$

12. $6x^2 - 11x - 21$

13. $2x^2 - 6x + 5xy - 15y$

14. $-28x^2 + 7xy + 2y - 8x$

Solve. Leave all answers in simplest radical form where appropriate.

$$15. x^2 + 8 = 28$$

$$16. 2n^2 = -144$$

$$17. x^2 - 5 = 73$$

$$18. 10n^2 + 2 = 292$$

$$19. 2x^2 - 3x - 5 = 0$$

$$20. 2m^2 - 7m - 13 = -10$$

$$21. 2x^2 - 36 = 6$$

$$22. k^2 - 31 - 2k = -6 - 3k^2 - 2k$$

Solve by factoring.

$$23. x^2 - 11x + 19 = -5$$

$$24. 7r^2 - 14r = -7$$

$$25. -4k^2 - 8k - 3 = -3 - 5k^2$$

$$26. 7x^2 + 2x = 0$$

$$27. 8x^2 + 21 = -59x$$

$$28. 15a^2 - 3a = 3 - 7a$$

Solve for the variable indicated.

29. $d = rt$ for t

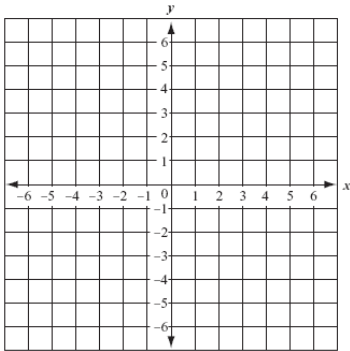
30. $A = \frac{1}{2}h(b_1 + b_2)$ for b_1

31. $I = \frac{PN}{RN+A}$ for N

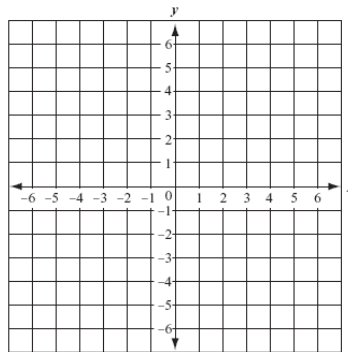
32. $A = 2\pi r^2 + 2\pi rh$ for π

Graph

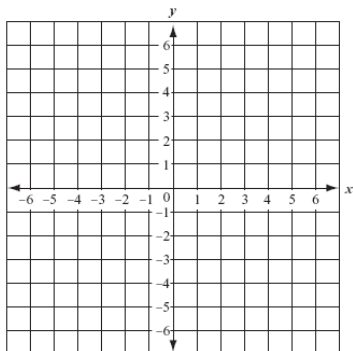
33. $y = -\frac{5}{2}x - 5$



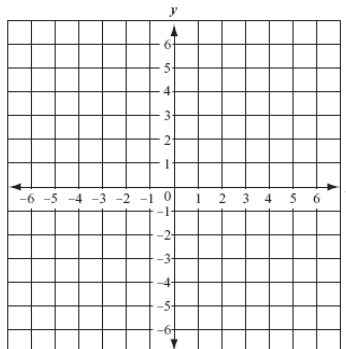
34. $y = x - 3$



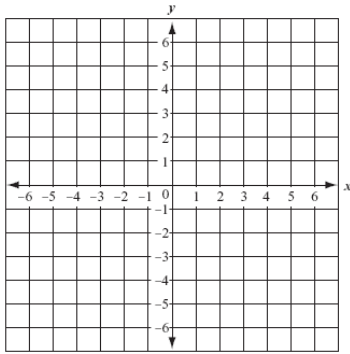
35. $y = 5$



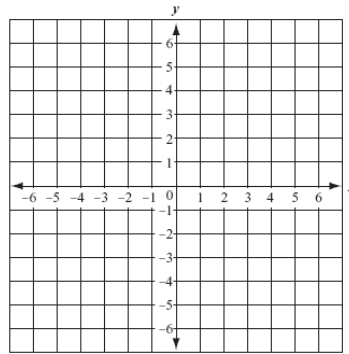
36. $x = -2$



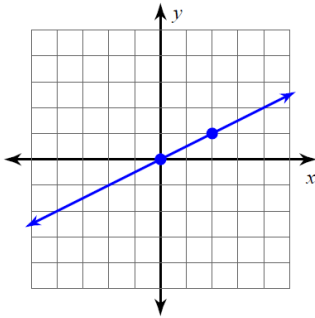
37. $2x - y = 4$



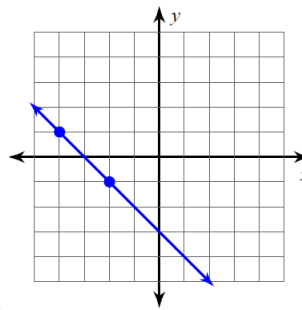
38. $\frac{1}{2}x - 3y = 8$



Find the slope.



39.



40.

41. $(5, -2)(3, 7)$

42. $(-4, 6)(-4, \frac{1}{2})$

Write the equation of the line given the following:

43. $m = 5, b = -6$

44. Through the points $(3, 7)(0, -5)$

45. Through $(2, -3)$ perpendicular to the line $y = -\frac{1}{2}x - 5$

46. Through the point (10, -6) perpendicular to the line $x = 3$

Find the vertex of the following quadratic functions.

47. $f(x) = x^2 - 2x + 3$

48. $f(x) = 3(x - 5)^2 + 4$

Find the zeros of the quadratic functions.

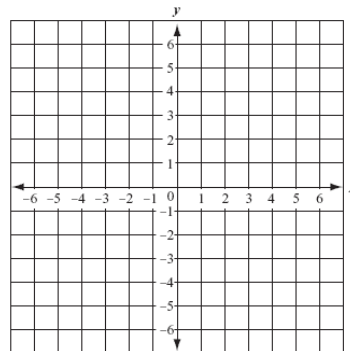
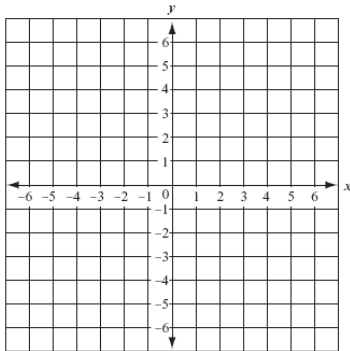
49. $f(x) = x^2 + 4x + 4$

50. $f(x) = 7x^2 + 10x - 8$

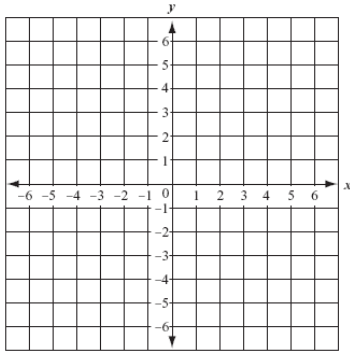
Graph

51. $f(x) = 3x^2$

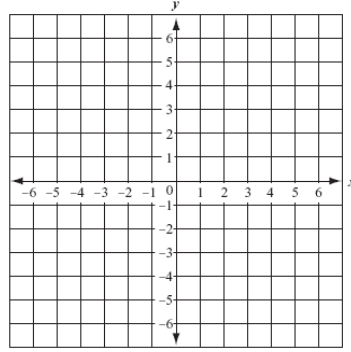
52. $f(x) = x^2 - 8x + 13$



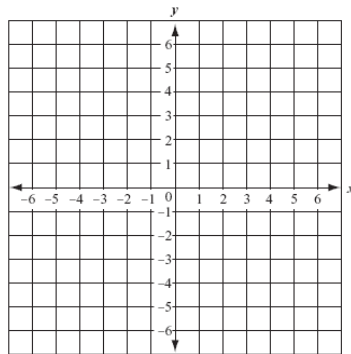
$$53. f(x) = -x^2 - 8x - 13$$



$$54. f(x) = (x - 3)^2 + 1$$



$$55. f(x) = \frac{1}{2}(x - 4)^2 - 2$$



Use the discriminant to determine the number and types of solutions to the quadratic equation.

$$56. x^2 - 3x + 2 = 0$$

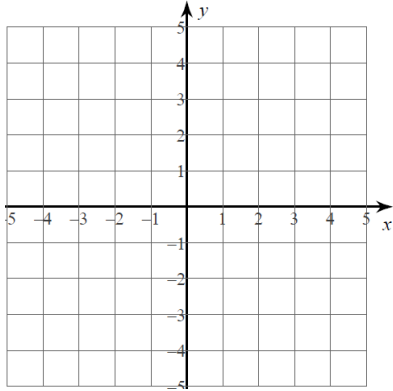
$$57. -3x^2 - 7x + 14 = 0$$

$$58. x^2 - 5x - 14 = 0$$

$$59. x^2 - 2 + 1 = 0$$

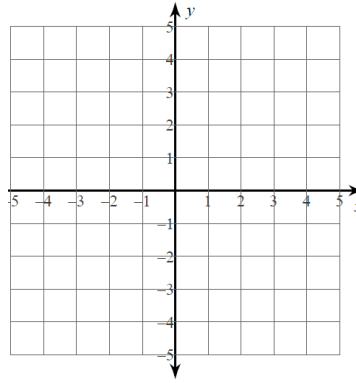
Solve the system of equations by graphing.

$$y = 4x + 3$$
$$y = -x - 2$$



60.

$$y = \frac{1}{3}x - 3$$
$$y = -x + 1$$



61.

Solve.

$$x - y = 11$$
$$2x + y = 19$$

62.

$$-7x + y = -19$$
$$-2x + 3y = -19$$

63.

$$-3x + 3y = 4$$
$$-x + y = 3$$

64.

$$2x + y = 20$$
$$6x - 5y = 12$$

65.