

Simplify these square roots, if possible. Assume x is positive.

a) $\sqrt{60}$

b) $\sqrt{500}$

c) $\sqrt{147}$

d) $\sqrt{44}$

e) $\sqrt{32}$

f) $\sqrt{63}$

g) $\sqrt{144}$

h) $\sqrt{4x^2}$

i) $\sqrt{14x^5}$

j) $\sqrt{75x^{10}}$

k) $\sqrt{18x^9}$

l) $\sqrt{x}\sqrt{x}$

Completing the Square

Complete the square

a) $x^2 + 8x + \underline{\hspace{2cm}}$

b) $x^2 - 12x + \underline{\hspace{2cm}}$

c) $x^2 + 13x + \underline{\hspace{2cm}}$

d) $x^2 - 5x + \underline{\hspace{2cm}}$

e) $x^2 + x + \underline{\hspace{2cm}}$

f) $x^2 - 36x + \underline{\hspace{2cm}}$

Solving Quadratic Equations

Solve each. Choose a method that is appropriate and efficient.

a) $x^2 + 14x = -42$

b) $2x^2 = 100$

c) $2x^2 - 5x = 3$

d) $x^2 + 7x + 5 = 0$

e) $2x^2 + 9x = -8$

f) $x^2 = 120$

g) $x^2 - 3x = 28$

h) $x^2 - 8x - 21 = 0$

i) $x^2 + 10x = 5$

j) $3x^2 - 11 = 0$

k) $x^2 - 3x = 6$

l) $3x^2 + x - 4 = 0$

m) $3x^2 + 4x - 6 = 0$

n) $6x^2 - 11x - 10 = 0$

o) $x^2 - 2x - 9 = 0$

p) $x^2 - 81 = 0$

1) Graph each line. No calculator

a) $x = 8$

b) $y = 3$

c) $y = 0$

d) $x = 0$

2) Graph each line. NC

a) $y = x + 9$

b) $y = 3x - 4$

c) $y = \frac{2}{3}x + 2$

d) $y = -\frac{1}{6}x - 4$

3) Graph each line. NC

a) $3x + 7y = 31$

b) $-x + 8y = 10$

c) $2x + 3y = -15$

d) $3x - 5y = 22$

4) Find the equation of the line through.... NC

a) (8, 6) and (-2, 6)

b) (-2, -1) and (-2, 11)

c) (0, 3) and (9, -1)

d) (0, -7) and (-2, -8)

e) (0, 0) and (9, 8)

5) Find the equation of the line through.... NC

a) (8, 3) and (10, 1)

b) (-3, -7) and (7, 2)

c) (4, -1) and (12, 0)

d) (-1, 7) and (8, -10)

6) Find the intercepts of... NC

a) $y = 2x + 9$

b) $3y + 8x = -11$

c) $6x + 7y = 14$

d) $2x - 5y = 18$

e) $x = 9$

f) $y = -7$

Graph these quadratic equations.

1) For these examples...

- * Find the y -intercept.
- * Find the vertex, x and y coordinates.
- * Find the axis of symmetry.
- * Find the x -intercepts, if possible.

a) $y = x^2 - 6x + 4$

b) $y = x^2 + 10x$

c) $y = x^2 + 3x + 8$

d) $y = -x^2 - 7x + 30$

e) $y = x^2 - 14x + 24$

f) $y = -x^2 + 5x + 15$

2) For these examples...

- * Find the y -intercept.
- * Find the vertex, x coordinate only.
- * Find the axis of symmetry.
- * Find the x -intercepts, if possible.
- * If there are no x -intercepts, find the y -coordinate of the vertex, if practical.
- * If that fails, find two ordered pairs near the axis of symmetry to approximate the vertex.

a) $y = 2x^2 - 5x - 12$

b) $y = -3x^2 + 6x - 5$

c) $y = 5x^2 - 15x$

d) $y = 2x^2 + 9x - 40$

e) $y = 8x^2 + 21x - 10$

f) $y = \frac{1}{2}x^2 + 8x + 11$

g) $y = \frac{1}{3}x^2 - 9x + 42$

h) $y = -\frac{1}{5}x^2 + x - 7$