

Test A

- ANS: ●
KEY: Solv
- ANS: ●
KEY: Solv
- ANS: ●
KEY: Para
- ANS: ●
KEY: Para
- ANS: ●
KEY: Graf
- ANS: ●
KEY: Graf
- ANS: ●
KEY: Solv
- ANS: ●
KEY: Para
- ANS: ●
KEY: Para

Test B

- ANS: ●
KEY: Solve
- ANS: ●
KEY: Solve
- ANS: ●
KEY: Parat
- ANS: ●
KEY: Parat
- ANS: ●
KEY: Graf
- ANS: ●
KEY: Graf
- ANS: ●
KEY: Solve
- ANS: ●
KEY: Parat
- ANS: ●
KEY: Parat

Solve the quadratic equation by completing the square.

Test A

1. $g^2 - 10g + 7 = 0$

- a. -5, 5
b. 9.2, 0.8

$$g^2 - 10g + 7 = 0 \quad \begin{array}{l} \text{c. } -7, 3 \\ \text{d. } 7.6, 2.4 \end{array}$$

$$c = \left(\frac{b}{2}\right)^2$$

$$\left(\frac{-10}{2}\right)^2 =$$

$$g^2 - 10g + 25 = -7 + 25$$

$$\sqrt{(g-5)^2} = \sqrt{18}$$

$$g-5 = \pm 4.2$$

$$\begin{array}{r} +5 \quad +5 \\ \hline \end{array}$$

$$g = 4.2 + 5 = 9.2$$
$$g = -4.2 + 5 = 0.8$$

Solve the quadratic equation by completing the square.

Test B

1. $g^2 - 10g + 7 = 0$

a. 9.2, 0.8

b. -7, 3

c. 7.6, 2.4

d. -5, 5

$$\begin{array}{r} g^2 - 10g + 7 = 0 \\ -7 \quad -7 \\ \hline \end{array}$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{10}{2}\right)^2 = 25$$

$$\begin{array}{r} g^2 - 10g + 25 = -7 + 25 \\ \sqrt{(g-5)^2} = \sqrt{18} \end{array}$$

$$\begin{array}{r} g - 5 = \pm 4.2 \\ +5 \quad +5 \\ \hline \end{array}$$

$$g = 9.2 \text{ or } 0.8$$

2. $x^2 + 12x - 12 = 14$

a. 1.9, -13.9

b. 6, 6

c. 8, 20

d. 2, 14

$$\begin{array}{r} x^2 + 12x - 12 = 14 \\ +12 \quad +12 \\ \hline \end{array}$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{12}{2}\right)^2 = 36$$

$$x^2 + 12x + 36 = 26 + 36$$

$$\sqrt{(x+6)^2} = \sqrt{62}$$

$$\frac{b}{2} = \frac{12}{2} = 6$$

$$\begin{array}{r} x + 6 = \pm 7.9 \\ -6 \quad -6 \\ \hline \end{array}$$

$$x = -13.9 \text{ or } 1.9$$

Test A

Test B

2. $x^2 + 14x - 11 = 13$

a. 6, 20

c. 7, 7

b. 1.5, -15.5

d. 2, 16

$$\begin{array}{r} x^2 + 14x - 11 = 13 \\ \hline + 11 + 11 \end{array} \quad \left(\frac{b}{2}\right)^2 = \left(\frac{14}{2}\right)^2 = 49$$

$$x^2 + 14x + 49 = 24 + 49$$

$$\sqrt{(x+7)^2} = \sqrt{73}$$

$$\begin{array}{r} x + 7 = \pm 8.5 \\ \hline - 7 - 7 \end{array}$$

$$x = -15.5 \text{ or } 1.5$$

Write the equation of the axis of symmetry.

Test A

3. $y = 2x^2 + 4x - 6$

a. $x = -1$

c. $x = 1$

b. $x = -2$

d. $x = -4$

$$x = \frac{-b}{2a} = \frac{-4}{2(2)} = \frac{-4}{4} = -1$$

$$x = -1$$

Find the coordinates of the vertex of the graph of the function.

$$5x^2 + 0x - 4 \quad b = 0$$

Test B

3. $y = 5x^2 - 4$

a. $(0, -4)$

b. $(0, \frac{5}{4})$

$$x = \frac{-b}{2a} = \frac{0}{2(5)} = 0$$

c. $(0, \frac{4}{5})$

d. $(4, 0)$

x coordinate
is axis of
symmetry

$$y = 5(0)^2 - 4$$

$$y = -4$$

4. $y = -3 - 9x - 3x^2$

a. $x = -\frac{3}{2}$

b. $x = \frac{3}{2}$

$$x = \frac{-b}{2a}$$

$$y = ax^2 + bx + c$$

$$y = -3x^2 - 9x - 3$$
$$= \frac{9}{2(-3)}$$

c. $x = 0$

d. $x = -3$

Test A

4. $y = 5x^2 - 8x + 4$

Test B

a. $\left(\frac{8}{5}, 4\right)$ $\frac{-b}{2a} = \frac{8}{2(5)} = \frac{8}{10} = \frac{4}{5}$

c. $(0, 4)$

b. $\left(\frac{4}{5}, \frac{4}{5}\right)$

d. $\left(\frac{5}{8}, \frac{16}{8}\right)$

$$y = 5\left(\frac{4}{5}\right)^2 - 8\left(\frac{4}{5}\right) + 4$$

$$= 5\left(\frac{16}{25}\right) - \frac{32}{5} + 4$$

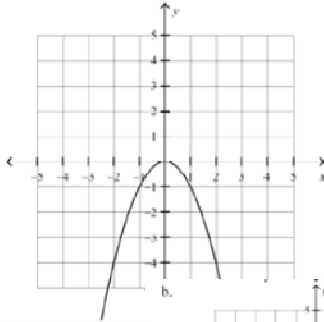
$$= \frac{16}{5} - \frac{32}{5} + \frac{20}{5}$$

$$= \frac{4}{5}$$

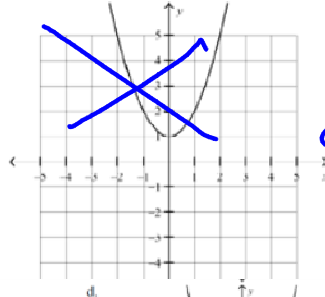
5. $y = -x^2 - 1$

Test A

a.



c.



$$y = -x^2 - 1$$

$$a = -1$$

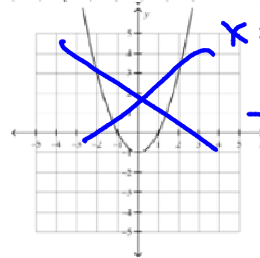
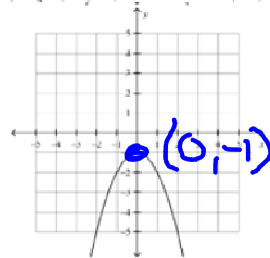
$$b = 0$$

$$c = -1$$

$$x = \frac{-b}{2a} = \frac{0}{2(-1)} = 0$$

$$-(0)^2 - 1$$

$$-1$$



5. $y = x^2 + 3x + 2$

$x^2 + 3x + 2$

$\frac{-b}{2a} = \frac{-3}{2(1)} = \frac{-3}{2}$

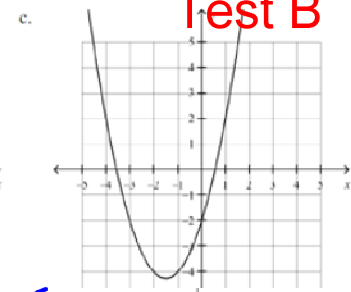
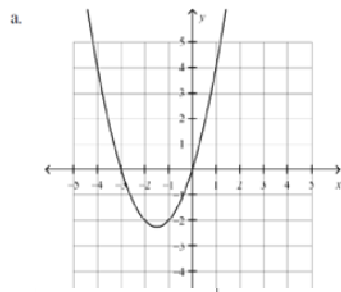
$\left(\frac{-3}{2}\right)^2 + 3\left(\frac{-3}{2}\right) + 2$

$\frac{4}{4} + \frac{-9 \cdot 2}{2 \cdot 2} + 2$

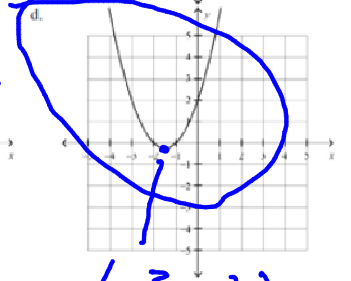
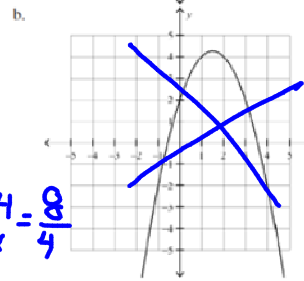
$\frac{4}{4} + \frac{-18}{4} + \frac{8}{4}$

$\frac{-1}{4}$

$\frac{2 \cdot 4}{4} = \frac{8}{4}$

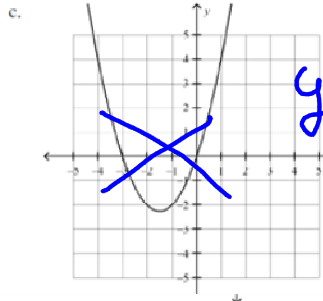
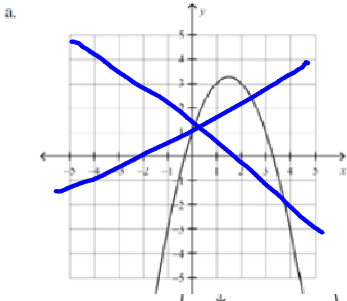


Test B



$\left(-\frac{3}{2}, -\frac{1}{4}\right)$

6. $y = x^2 + 3x + 1$



Test A

$y = x^2 + 3x + 1$

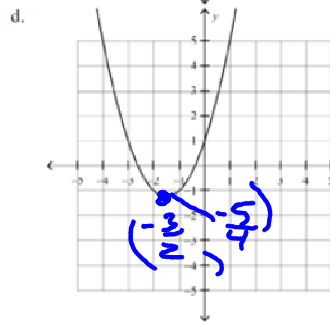
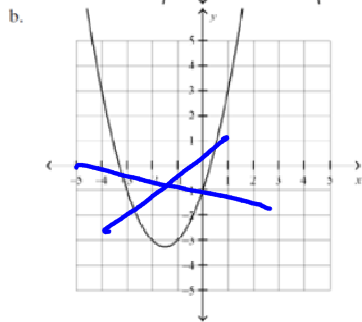
$x = \frac{-b}{2a} = \frac{-3}{2(1)} = \frac{-3}{2}$

$\left(\frac{-3}{2}\right)^2 + 3\left(\frac{-3}{2}\right) + 1$

$\frac{9}{4} + \frac{-9 \cdot 2}{2 \cdot 2} + 1$

$\frac{9}{4} + \frac{-18}{4} + \frac{4}{4}$

$\frac{-5}{4}$



$\left(-\frac{3}{2}, -\frac{5}{4}\right)$

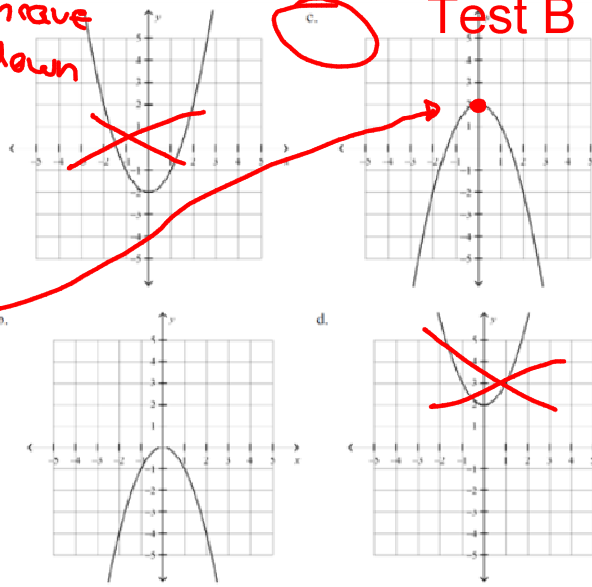
6. $y = -x^2 + 2$

$\frac{-b}{2a} = \frac{0}{2(-1)} = 0$

$y = -(0)^2 + 2 = 2$

Vertex $(0, 2)$

$a = -1$ - concave down
 $b = 0$
 $c = 2$



Solve the equation by using the Quadratic Formula. Round to the nearest tenth if necessary.

7. $h^2 + 28h - 3 = 0$

a. $0, -28$

b. $14.1, -14.1$

$a = 1$

$b = 28$

$c = -3$

c. $0.2, -56.2$

d. $0.1, -28.1$

Test A

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-28 \pm \sqrt{784 - 4(1)(-3)}}{2(1)} = \frac{-28 \pm \sqrt{784 + 12}}{2}$$

$$\frac{-28 \pm \sqrt{796}}{2} = \frac{-28 \pm 28.2}{2} \quad \frac{.2}{2} = 0.1$$

$$\frac{-56.2}{2} = -28.1$$

Solve the equation by using the Quadratic Formula. Round to the nearest tenth if necessary.

Test B

7. $h^2 + 12h - 7 = 0$

a. $0.1, -12.$

b. $1.1, -25.1$

$a = 1$

$b = 12$

$c = -7$

c. $6.6, -6.6$

d. $0.6, -12.6$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-12 \pm \sqrt{144 - 4(1)(-7)}}{2(1)} = \frac{-12 \pm \sqrt{144 + 28}}{2}$$

$$\frac{-12 \pm \sqrt{172}}{2} = \frac{-12 \pm 13.1}{2}$$

$$\frac{-25.1}{2} = -12.55 \approx -12.6$$

$$\frac{1.1}{2} = .55 \approx 0.1$$

Find the coordinates of the vertex of the graph of the function.

Test A

8. $y = 3x^2 - 4x + 3$

a. $\left(\frac{4}{3}, 3\right)$

b. $(0, 3)$

$$x = \frac{-b}{2a}$$

$$\frac{4}{2(3)} = \frac{2}{3}$$

c. $\left(\frac{3}{4}, \frac{9}{4}\right)$

d. $\left(\frac{2}{3}, \frac{5}{3}\right)$

Test B

Write the equation of the axis of symmetry.

8. $y = 3x^2 + 9x - 9$

a. $x = -6$

b. $x = -3$

c. $x = -\frac{3}{2}$

d. $x = \frac{3}{2}$

$$\frac{-b}{2a} = \frac{-9}{2(3)} = \frac{-9}{6} = \frac{-3}{2}$$

Test A

9. $y = 5x^2 - 4$

a. $(0, \frac{5}{4})$

b. $(0, \frac{4}{5})$

c. $(4, 0)$

d. $(0, -4)$

$$\frac{-b}{2a} = \frac{0}{2(5)} = 0$$
$$y = 5(0)^2 - 4$$
$$y = -4 \quad (0, -4)$$

$$a = -3 \quad b = -8 \quad c = -5$$

Test B

9. $y = -5 - 8x - 3x^2$

a. $x = \frac{4}{3}$

b. $x = -\frac{7}{3}$

$$\frac{-b}{2a} = \frac{8}{2(-3)} = \frac{8}{-6}$$

c. $x = -\frac{4}{3}$

d. $x = -\frac{8}{3}$

$$\frac{8}{-6} = -\frac{4}{3}$$