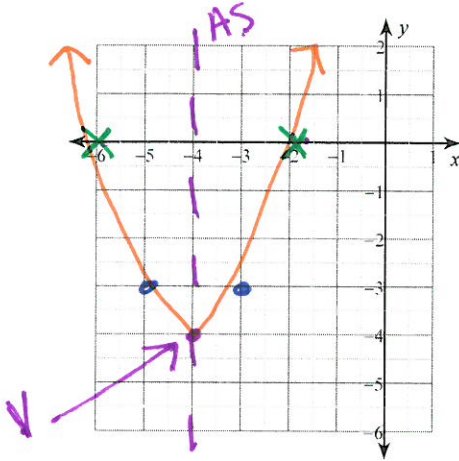


Chapter 10 Calculator Practice Test

Graph and Solve each quadratic function:

- (a) Clearly graph at least 5 points and provide the supporting table of values.
- (b) Give the ordered pair for the y-intercept: "Y-int (,)" If possible, mark graph with a "Y".
- (c) Mark the axis of symmetry with a "AS" and give the appropriate equation.
- (d) Mark the vertex with a "V" and give its ordered pair.
- (e) Mark the x-intercepts with a "X". *and give their ordered pairs.*
- (f) Solve the quadratic function and label solutions "Roots are x=...".

1) $f(x) = (x + 4)^2 - 4$



b) y-int (0, -4)

Look at table for x=0

c) AS: x = -4

d) V (-4, -4)

AS same as x coord. of the vertex

e) X-int (-6, 0) (-2, 0)

f) Roots x = -2, -6

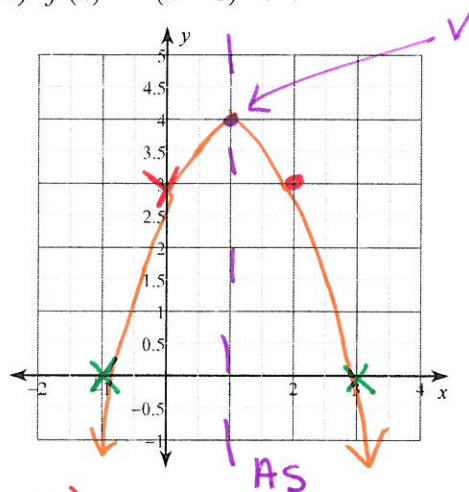
a)

x	-6	-5	-4	-3	-2
y	0	-3	-4	-3	0

X-int

Label Vertex

2) $f(x) = -(x - 1)^2 + 4$



b) y-int (0, 3)

c) AS x = 1

d) V (1, 4)

e) X-int (-1, 0) (3, 0)

f) Roots x = -1, 3

a)

x	-1	0	1	2	3
y	0	3	4	3	0

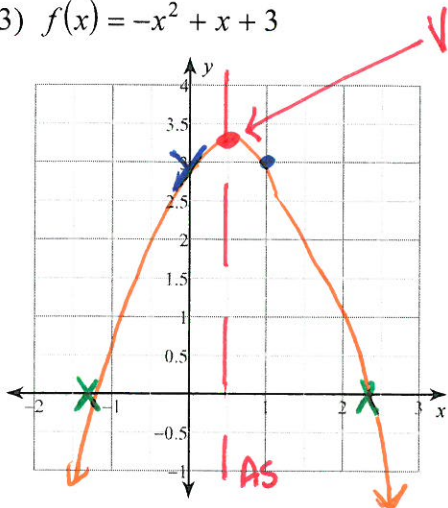
Y-int

X-ints

Graph and solve each function. ROUND TO 2 DECIMALS:

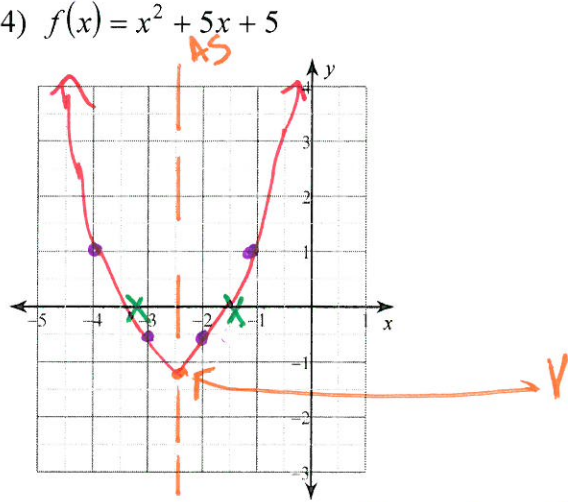
- Clearly graph marking at least 5 points.
- Mark the axis of symmetry with a "AS". Provide the appropriate equation.
- Mark the vertex with a "V". Provide the ordered pair.
- Mark the x-intercepts with a "X" by estimating its location.
- Solve the quadratic function by graphing, and label solutions "Roots are x=...".

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



$A = -1$ $B = 1$ $C = 3$
 $y_{INT} (0, 3)$

4) $f(x) = x^2 + 5x + 5$



$A = 1$ $B = 5$ $C = 5$
 $y_{INT} (0, 5)$
 Does NOT FIT

b) AS $x = 1/2$

c) V $(.5, 3.25)$

d) $X_{INT} (-1.30, 0)$
 $(2.30, 0)$

e) ROOTS
 $x = -1.30, 2.30$

b) AS $x = -2.5$

c) V $(-2.5, -1.25)$

d) $X_{INT} (-3.12, 0)$
 $(-1.38, 0)$

e) ROOTS
 $x = -3.12, -1.38$

a) additional PTS

			V		
x	-4	-3	-2.5	-2	-1
y	1	-1	-1.25	-1	1

Solve each equation by taking square roots. CLEARLY SHOW WORK AND ROUND TO 2 DECIMALS:

$$5) -2x^2 + 9 = -129$$

$$\begin{array}{r} -9 \quad -9 \\ \hline -2x^2 = -138 \\ \hline -2 \quad -2 \end{array}$$

$$\sqrt{x^2} = \sqrt{69} \leftarrow \text{show } \sqrt{\quad} \rightarrow$$

$$x = \pm \sqrt{69}$$

$$x \approx \pm 8.31$$

$$C: x \approx 8.31 \rightarrow -129.11 \approx -129 \checkmark$$

$$C: x \approx -8.31 \rightarrow -129.11 \approx -129 \checkmark$$

$$6) 4x^2 - 3 = 333$$

$$\begin{array}{r} +3 \quad +3 \\ \hline 4x^2 = 336 \\ \hline 4 \quad 4 \end{array}$$

$$\sqrt{x^2} = \sqrt{84}$$

$$x = \pm \sqrt{84}$$

$$x \approx \pm 9.17$$

$$C: x \approx 9.17 \rightarrow 333.36 \approx 333 \checkmark$$

$$C: x \approx -9.17 \rightarrow 333.36 \approx 333 \checkmark$$

Solve each equation with the quadratic formula. CLEARLY SHOW WORK AND ROUND TO 2 DECIMALS:

$$7) 11x^2 - 8x - 8 = 4$$

$$\begin{array}{r} -4 \quad -4 \\ \hline 11x^2 - 8x - 12 = 0 \end{array}$$

$$A = 11 \quad B = -8 \quad C = -12$$

$$x = \frac{8 \pm \sqrt{64 - 4(11)(-12)}}{2(11)}$$

$$x = \frac{8 \pm \sqrt{592}}{22}$$

$$x = \frac{8 + \sqrt{592}}{22}$$

$$x = \frac{8 - \sqrt{592}}{22}$$

$$x \approx 1.47$$

$$x \approx -0.74$$

$$C: x \approx 1.47$$

$$4.0099 \approx 4 \checkmark$$

$$C: x \approx -0.74$$

$$3.94 \approx 4 \checkmark$$

Solve with the quadratic formula. CLEARLY SHOW WORK AND ROUND TO 2 DECIMALS:

$$8) -7x^2 - 7 = -6x^2 + 11x$$

$$+6x^2 - 11x + 6x^2 - 11x$$

$$-x^2 - 11x - 7 = 0$$

$$\boxed{\begin{matrix} A = -1 \\ B = -11 \\ C = -7 \end{matrix}}$$

$$X = \frac{11 \pm \sqrt{121 - 4(-1)(-7)}}{2(-1)}$$

$$X = \frac{11 \pm \sqrt{93}}{-2}$$

$$X = \frac{11 + \sqrt{93}}{-2}$$

$$X = \frac{11 - \sqrt{93}}{-2}$$

$$X \approx -10.32$$

$$X \approx -0.68$$

$$C: X \approx -10.32$$

$$-752.52 \approx -758.14 \checkmark$$

$$C: X \approx -0.68$$

$$-10.24 \approx -10.25 \checkmark$$

Solve by completing the square. CLEARLY SHOW WORK AND ROUND TO 2 DECIMALS:

$$9) x^2 + 10x - 81 = -4$$

$$\frac{\quad +81 \quad +81}{\quad}$$

$$x^2 + 10x + \boxed{25} = 77 + 25$$

$$\sqrt{(x+5)^2} = \sqrt{102} \quad \leftarrow \text{DO NOT ROUND}$$

$$x+5 = \pm \sqrt{102}$$

$$x = -5 + \sqrt{102}$$

$$x = -5 - \sqrt{102}$$

$$\boxed{X \approx 5.10}$$

$$\boxed{X \approx -15.10}$$

$$C: X \approx 5.10$$

$$-3.99 \approx -4 \checkmark$$

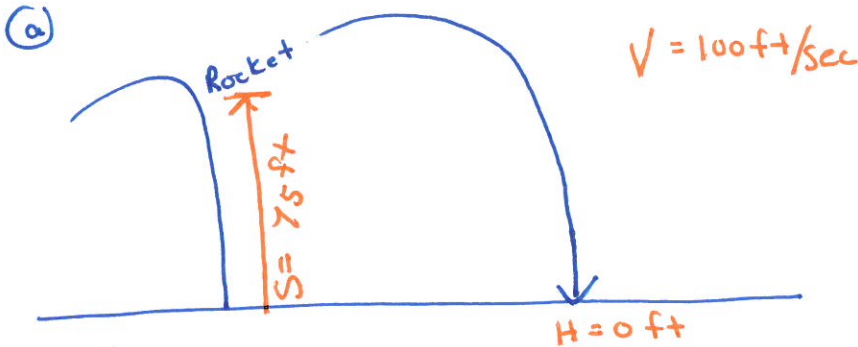
$$C: X \approx -15.10$$

$$-3.99 \approx -4$$

For the following word problem:

- (a) Sketch and label the graph. Include units and label the variables.
- (b) Write the model for height as a function of time using function notation.
- (c) Use the quadratic formula to solve. Clearly show your work!!
Round solutions to "ONE DECIMAL". Circle your solutions.
- (d) Answer question in a complete sentence.

10) A rocket is launched from atop a 75 ft cliff with an initial vertical velocity of 100 feet per second. how long after the rocket is launched will it hit the ground?



(b) Model
 $h(t) = -16t^2 + 100t + 75$

(c) $0 = -16t^2 + 100t + 75$ $A = -16$ $B = 100$ $C = 75$

$$t = \frac{-100 \pm \sqrt{10000 - 4(-16)(75)}}{2(-16)}$$
$$t = \frac{-100 \pm \sqrt{14800}}{-32}$$
$$t = \frac{-100 + \sqrt{14800}}{-32} \qquad t = \frac{-100 - \sqrt{14800}}{-32}$$

$t \approx -0.7$ $t \approx 6.9$

(d) The rocket will reach the ground at about 6.9 seconds.