

Chapter 4 Review #1 Graphing QF's

1) For the quadratic function:

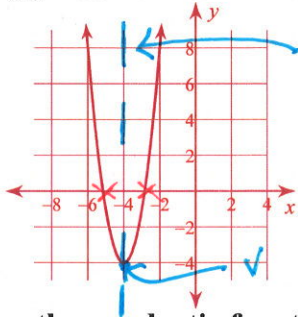
- a) Describe the shape and explain opens up because $A=+3$
- b) Give the ordered pair for the y-intercept and explain $(0, 44)$ because $C=44$
- c) Find the Axis of Symmetry and give in the proper format $X=-4$
- d) Find the vertex and give in the proper format $(-4, -4)$ ← Vertex is a point.

A.S. must write as an EQ of a line $x=$

1) $f(x) = 3x^2 + 24x + 44$

$A=3$ $B=24$ $C=44$
 ↑
 y-intercept

STANDARD FORM
 $Ax^2 + Bx + C$



A.S. $X = -\frac{B}{2A} = \frac{-24}{2(3)} = \frac{-24}{6}$

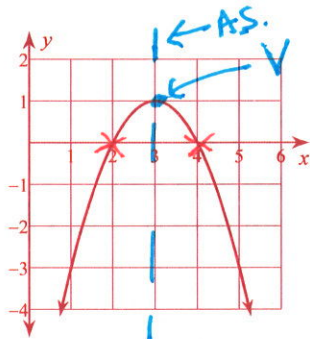
Vertex $(-4, -4)$ $X = -4$
 $Y = 3(-4)^2 + 24(-4) + 44 = -4$

2) For the quadratic function:

- a) Describe the shape and explain opens down because $A=-1$
- b) Give the ordered pair for the y-intercept and explain $(0, -8)$ because $C=-8$
- c) Find the Axis of Symmetry and give in the proper format $X=3$
- d) Find the vertex and give in the proper format $(3, 1)$

2) $f(x) = -x^2 + 6x - 8$

$A=-1$
 $B=6$
 $C=-8$
 ↑
 y-int



A.S. $X = -\frac{B}{2A} = \frac{-6}{2(-1)} = \frac{-6}{-2} = 3$ $X=3$

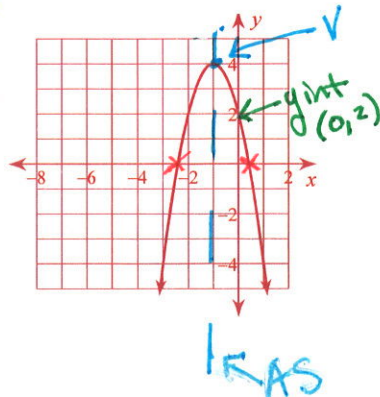
Vertex: $(3, 1)$
 $y = -(3)^2 + 6(3) - 8 = 1$

3) For the quadratic function:

- a) Describe the shape and explain opens down because $A=-2$
- b) Find the Axis of Symmetry and give in the proper format $X=-1$ ← must write as a line $x=$
- c) Find the vertex and give in the proper format $(-1, 4)$

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

$A=-2$
Vertex $(-1, 4)$



Vertex Form
 $f(x) = a(x-h)^2 + k$

The A.S. is the x-coordinate

4) Graph and label the parts of the quadratic function.

Create a table of 5 values with the vertex the middle point.

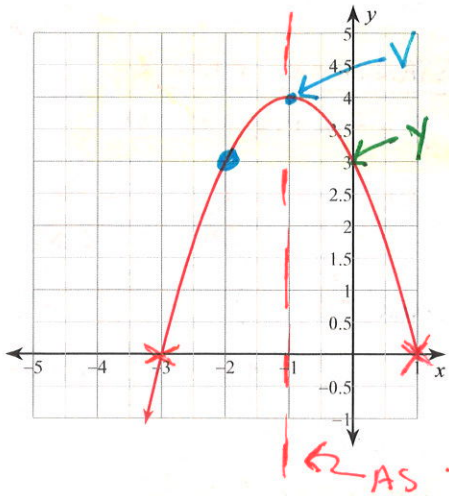
What is the vertex? $(-1, 4)$ (Label with a V)

What is the Axis of Symmetry? $x = -1$ (Label with A.S.)

What is the Y-intercept as an ordered pair? $(0, 3)$ (Label with a Y)

Find the Solutions: $x = -3, 1$ (Label with X's)

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



$A = -1$ $B = -2$ $C = 3$

① Find A.S. $x = \frac{-B}{2A} = \frac{2}{2(-1)} = -1$ $x = -1$

② plug EQ INTO CALC TO FIND Vertex

| X | Y |
|----|---|
| -3 | 0 |
| -2 | 3 |
| -1 | 4 |
| 0 | 3 |
| 1 | 0 |

Solutions are X intercepts (x, 0)

5) Graph and label the parts of the quadratic function.

Create a table of 5 values with the vertex the middle point.

What is the vertex? $(1.50, -3.5)$ (Label with a V)

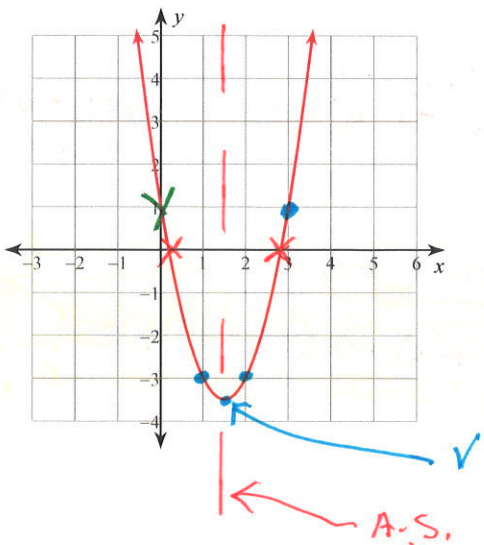
What is the Axis of Symmetry? $x = 1.50$ (Label with A.S.)

What is the Y-intercept as an ordered pair? $(0, 1)$ (Label with a Y)

Find the Solutions: $x = 0.18, 2.82$ (Label with X's)

Round to 2 decimals.

5) $f(x) = 2x^2 - 6x + 1$



$A = 2$ $B = -6$ $C = 1$

① Find VERTEX SINCE IT IS A
Decimal use

② CALC 3: MINIMUM

MINIMUM $x = 1.50$ $y = -3.5$

② Create Table

| X | Y |
|-----|------|
| 0 | 1 |
| 1 | -3 |
| 1.5 | -3.5 |
| 2 | -3 |
| 3 | 1 |

③ FIND SOLUTIONS
2: zero

Sketch the graph of each function.

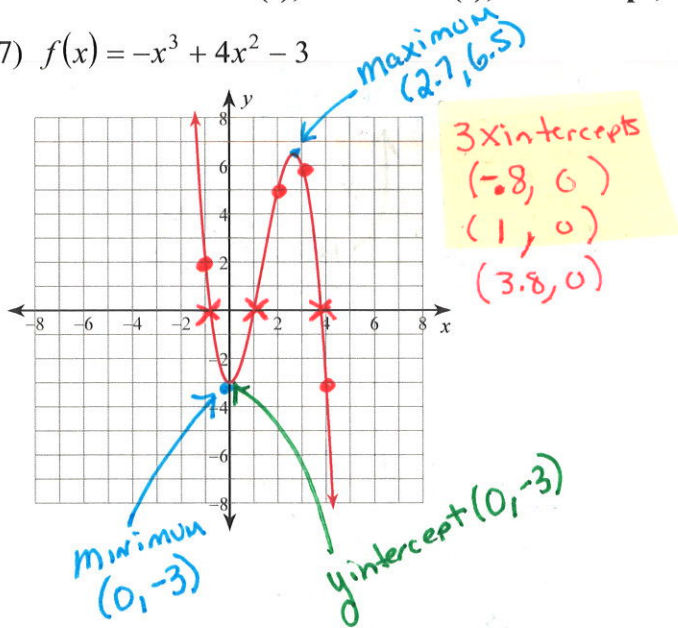
Include and CLEARLY LABEL all points that are turning points and intercepts.

Mark points (you can use arrows) and label points with their ordered pair (x,y).

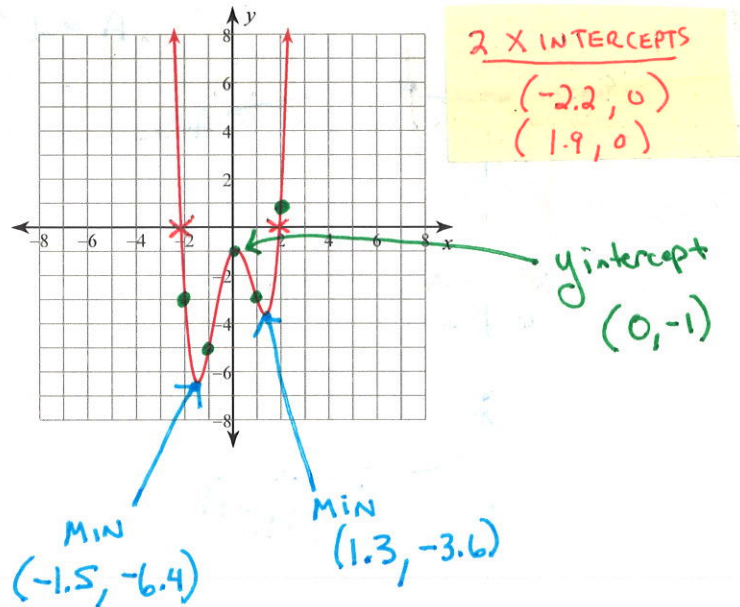
Estimate coordinates to 1 decimal place.

Include: Minimum(s), Maximum(s), Y-intercept, and X-intercept(s).

7) $f(x) = -x^3 + 4x^2 - 3$



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



| x | y |
|----|----|
| -1 | 2 |
| 0 | -3 |
| 1 | 0 |
| 2 | 5 |
| 3 | 6 |
| 4 | -3 |

| x | y |
|----|----|
| -2 | -3 |
| -1 | -5 |
| 0 | -1 |
| 1 | -3 |
| 2 | 1 |

6) Graph and label the parts of the quadratic function.

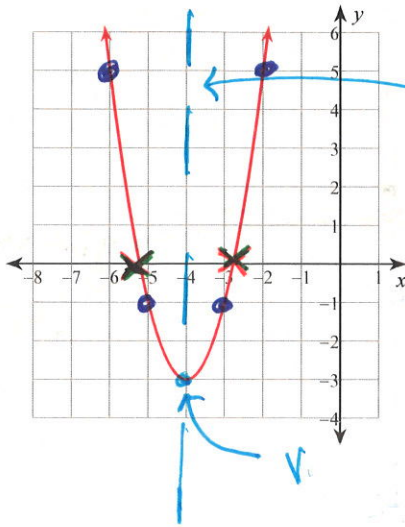
Create a table of 5 values with the vertex the middle point.

What is the vertex? $(-4, -3)$ (Label with a V)

What is the Axis of Symmetry? $x = -4$ (Label with A.S.)

Find the Solutions: $x = -5.22, -2.78$ (Label with X's)

6) $y = 2(x + 4)^2 - 3$



$A = 2$

Vertex $(-4, -3)$

A.S. $x = -4$

| X | Y |
|----|----|
| -6 | 5 |
| -5 | -1 |
| -4 | -3 |
| -3 | -1 |
| -2 | 5 |

V

FIND SOLUTIONS

2ND CALC 2: Zero

$(-5.22, 0)$

$(-2.78, 0)$