

Graph each of the following. You must include all of the following information. Be sure to label everything in your work and on your graph:

- Vertex
- Table of Values
- Axis of Symmetry
- y-intercept (exact)
- x-intercept (exact if possible, otherwise read off the graph)

1. $f(x) = x^2 - 2x - 15$

$A = 1, B = -2, C = -15$

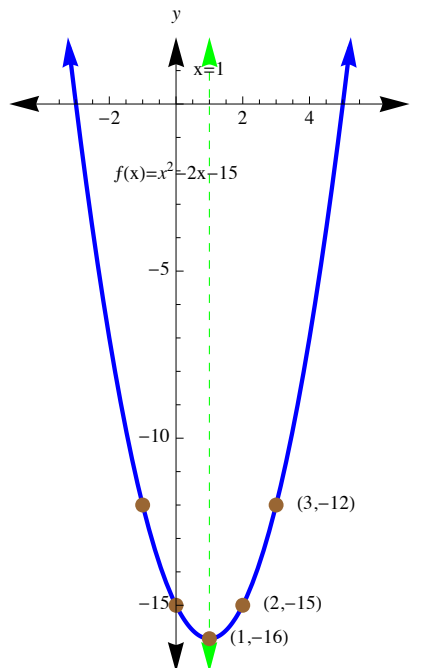
Vertex : $x = \frac{-B}{2A} = \frac{-(-2)}{2(1)} = \frac{2}{2} = 1$

x	y	(x, y)
-1	-12	(-1, -12)
0	-15	(0, -15)
1	-16	(1, -16)
2	-15	(2, -15)
3	-12	(3, -12)

Axis of symmetry : $x = 1$

x – intercepts : $(-3, 0)$ and $(5, 0)$

y – int : $(0, -15)$



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

$A = -6, B = 2, C = -8$

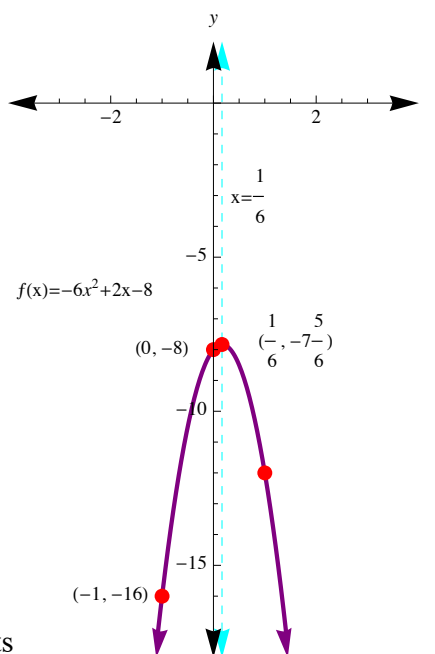
Vertex : $x = \frac{-B}{2A} = \frac{-(2)}{2(-6)} = \frac{-2}{-12} = \frac{1}{6}$

x	y	(x, y)
-1	-16	(-1, -16)
0	-8	(0, -8)
$\frac{1}{6}$	$-7\frac{5}{6}$	$(\frac{1}{6}, -7\frac{5}{6})$
1	-12	(1, -12)
2	-28	(2, -28)

Axis of symmetry : $x = \frac{1}{6}$

Does not cross x – axis so no x – intercepts or roots

y – int : $(0, -8)$



3. $f(x) = x^2 + x + 8$

$A = 1, B = 1, C = 8$

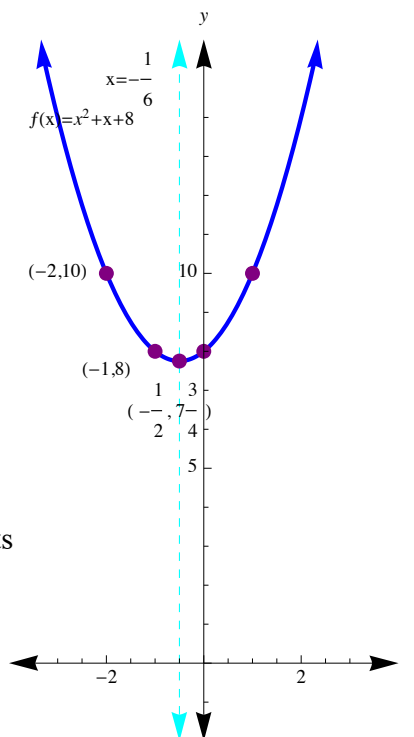
Vertex : $x = \frac{-B}{2A} = \frac{-(1)}{2(1)} = \frac{-1}{2} = -\frac{1}{2}$

x	y	(x, y)
-2	10	$(-2, 10)$
-1	8	$(-1, 8)$
$-\frac{1}{2}$	$7\frac{3}{4}$	$(-\frac{1}{2}, 7\frac{3}{4})$
0	8	$(0, 8)$
1	10	$(1, 10)$

Does not cross the x – axis so no x – intercepts or roots

Axis of symmetry : $x = -\frac{1}{2}$

y – int : $(0, 8)$



4. $f(x) = -2x^2 + 4x - 16$

$A = -2, B = 4, C = -16$

Vertex : $x = \frac{-B}{2A} = \frac{-(4)}{2(-2)} = \frac{-4}{-4} = 1$

x	y	(x, y)
-1	-22	$(-1, -22)$
0	-16	$(0, -16)$
1	-14	$(1, -14)$
2	-16	$(2, -16)$
3	-22	$(3, -22)$

This does not cross the x -axis

so there are 0 real roots

Axis of symmetry : $x = 1$

y – int : $(0, -16)$

