Section 2.1 Answers:

1) x-intercepts $(0,0)$ and $(6,0)$ $y - intercept$ $(0,0)$

3) x-intercepts $(-4,0)$ and $(1,0)$ and $(5,0)$ $y - intercept$ $(0,20)$

5) x-intercept $(8,0)$ $y - intercept$ $(0,-4)$

7) x-intercept $(-9,0)$ $y - intercepts$ $(0,3)$ and $(0,-3)$

9) x-intercepts $(-5,0)$ and $(1,0)$ $y - intercept$ $(0,-5)$

11) x-intercept $(8,0)$ $y - intercept$ $(0,2)$ and $(0,4)$

13a) point $(1,-2)$ 13b) point $(-1,2)$ 13c) point $(-1,-2)$
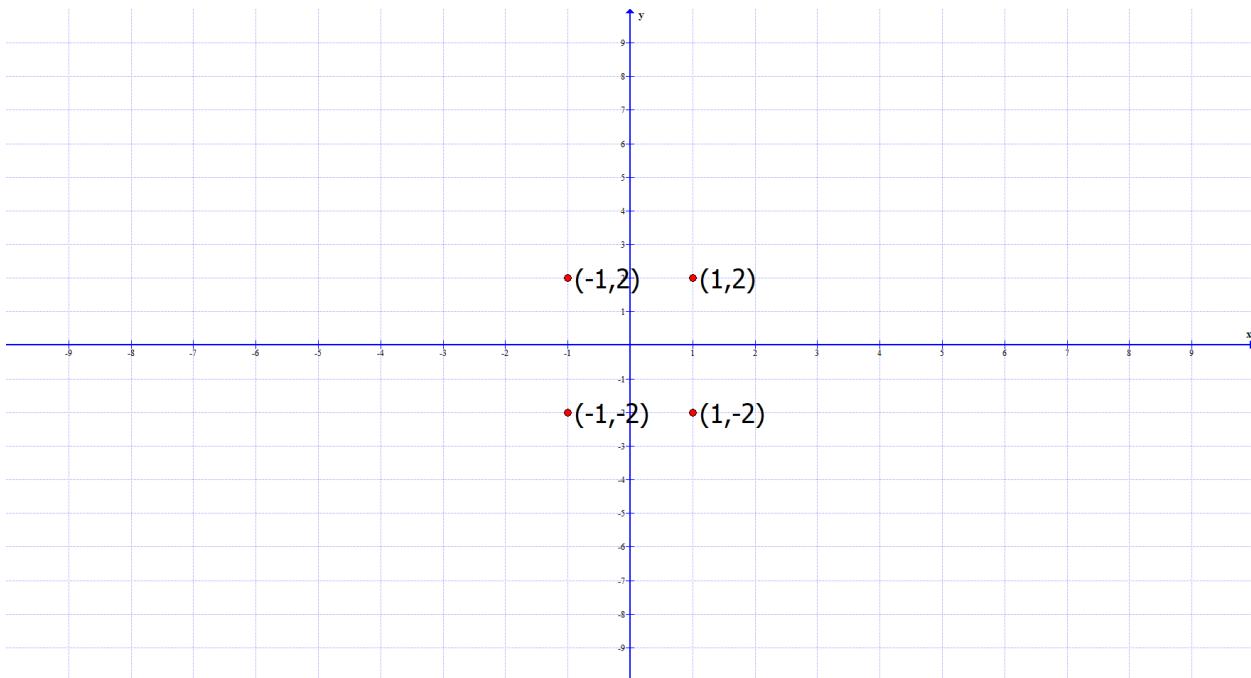
15a) point $(-1, -3)$ 15b) point $(1, 3)$ 15c) point $(1, -3)$

•(-1,3)   •(1,3)

•(-1,-3)   •(1,-3)
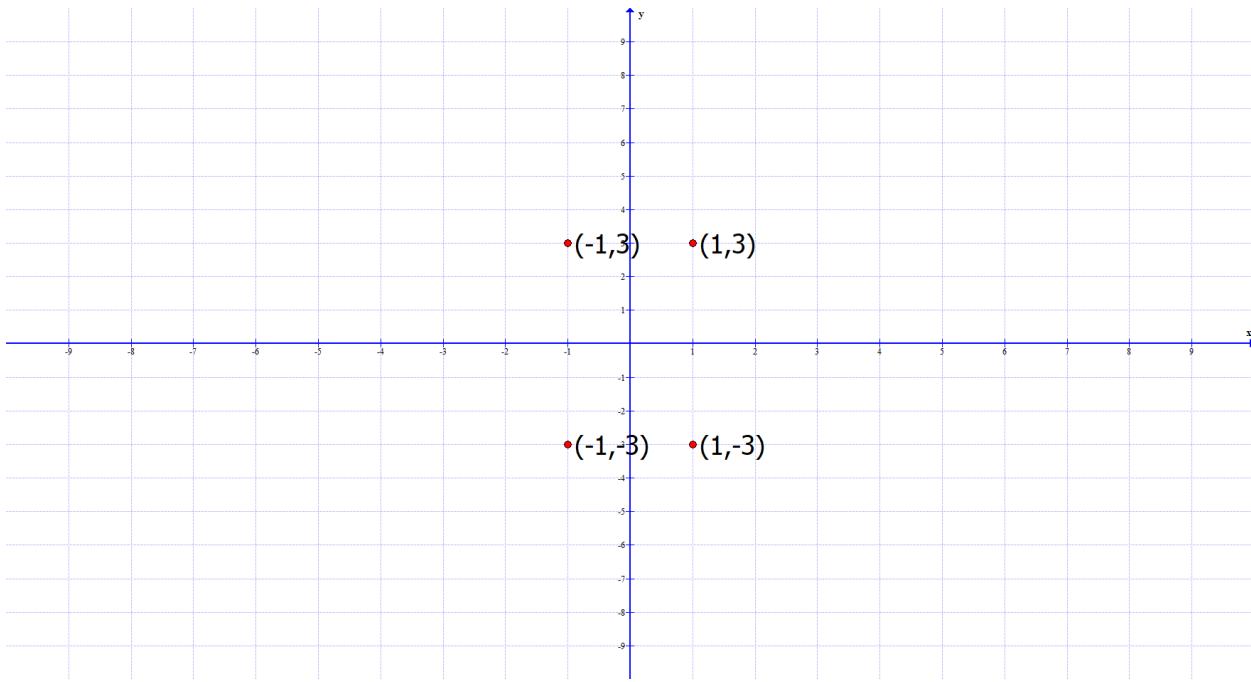
17a) point $(5, 0)$ 17b) point $(-5, 0)$ 17c) point $(-5, 0)$

(-5,0)   (5,0)
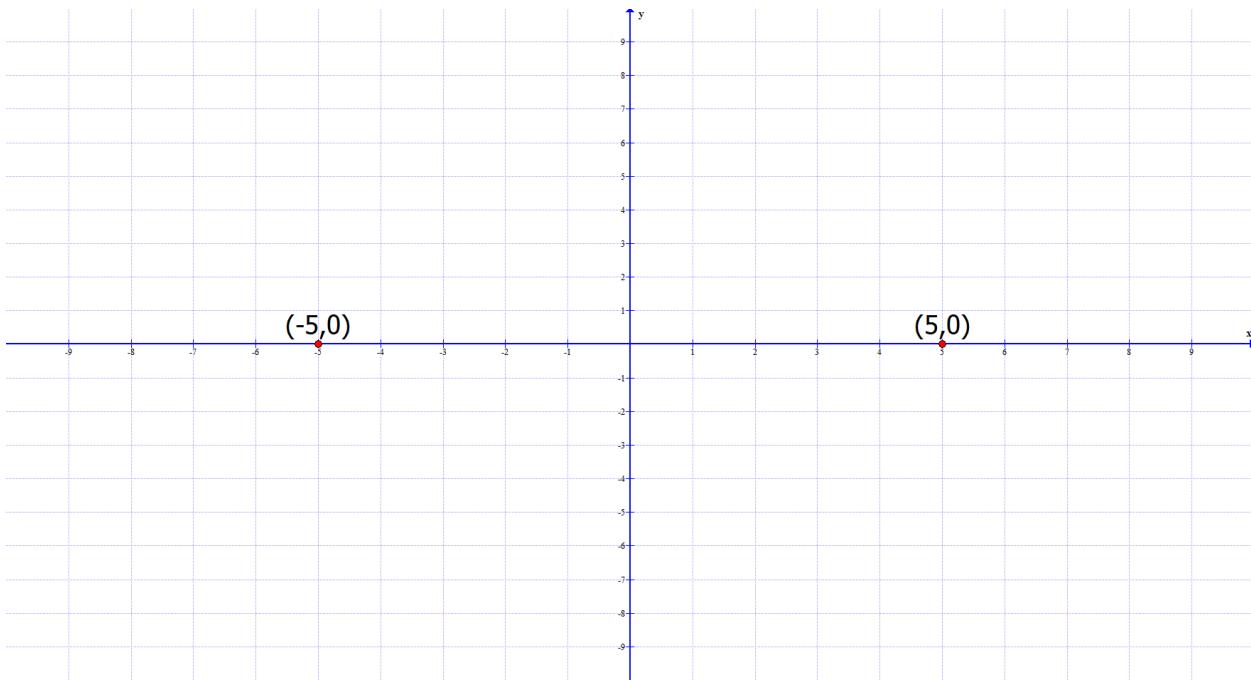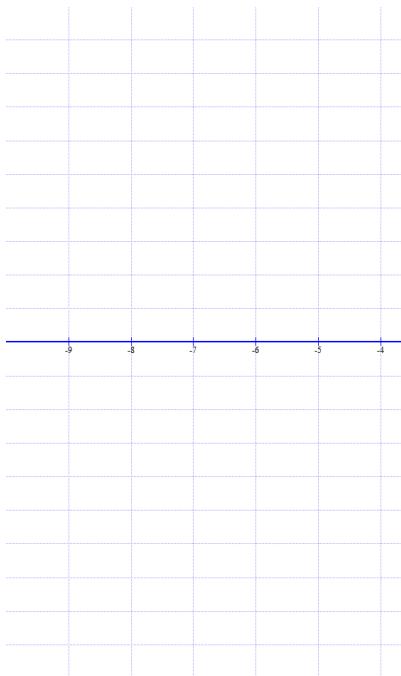
19a) point (0,2)   19b) point (0,−2)   19c) point (0,2)

21)

23)

Graph showing a parabola with points (-3,5), (3,5), (-2,0), (2,0), and (0,-4). The left branch is red, the right branch is blue.

25)

Graph showing points (-4,0), (-2,-2), (0,0), (2,2), and (4,0). The left curve is red, the right curve is blue.
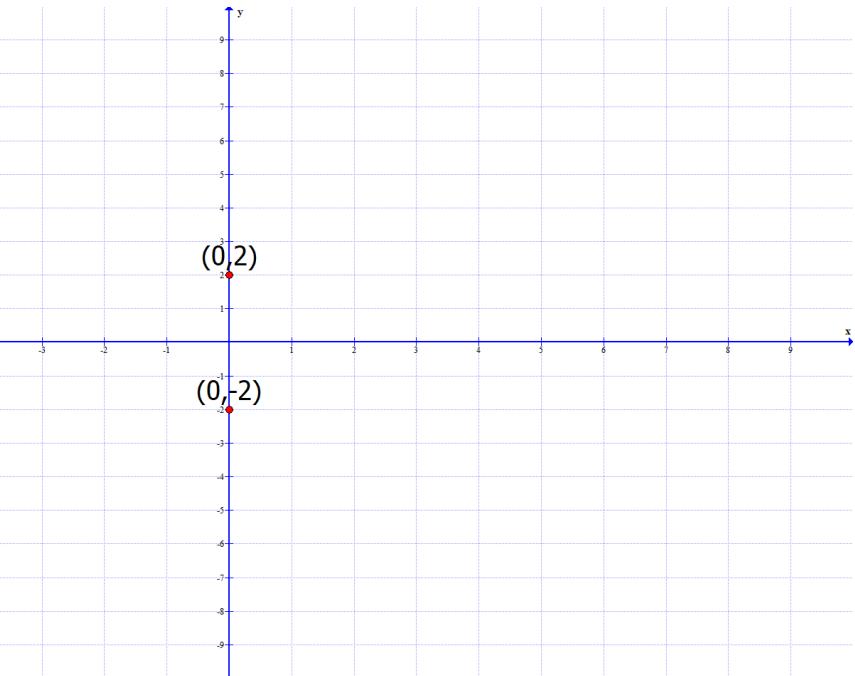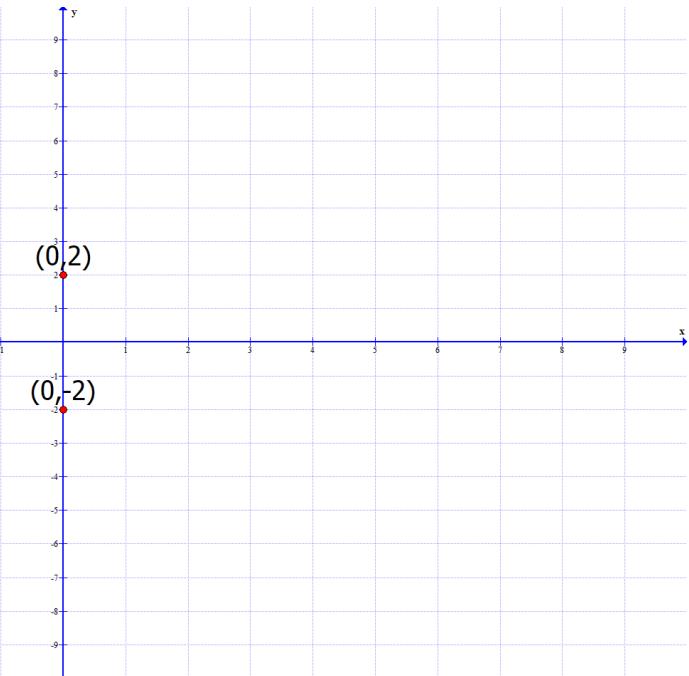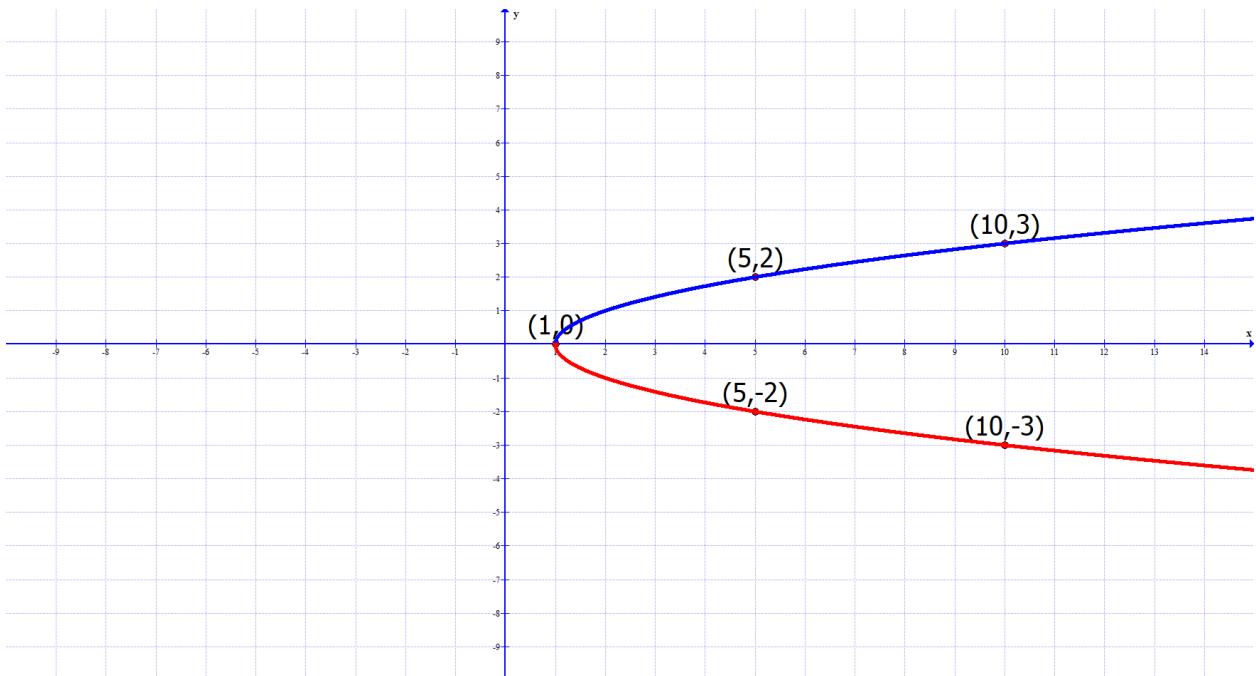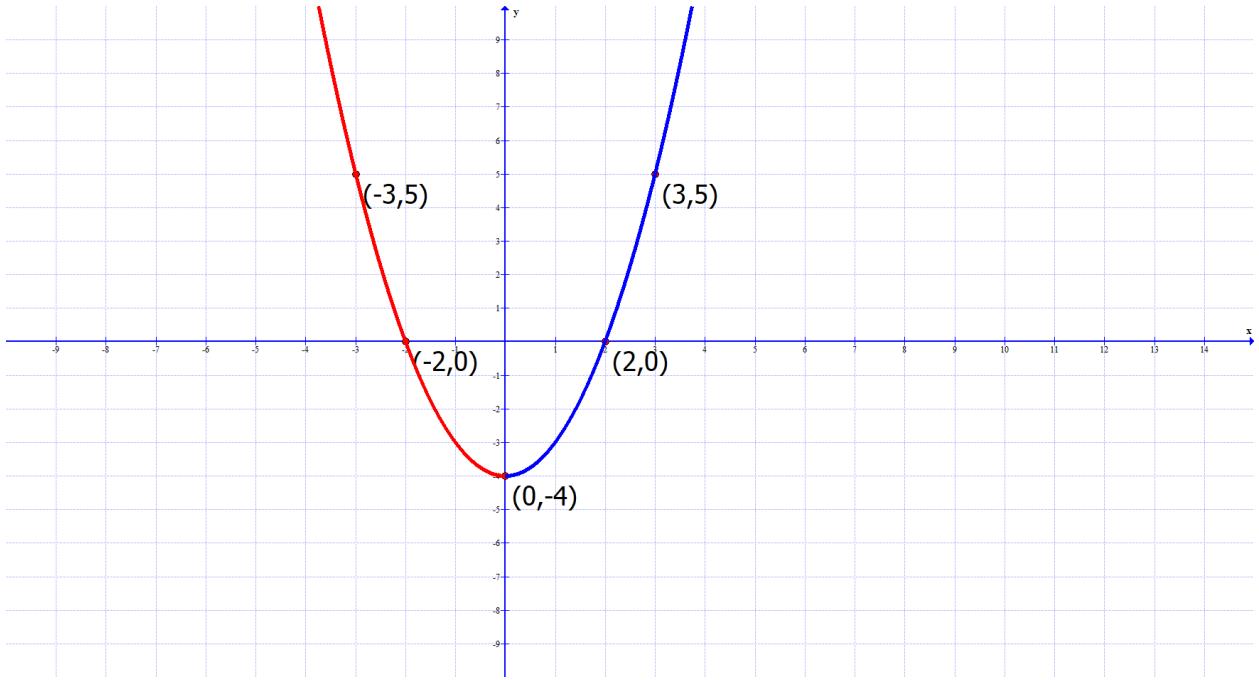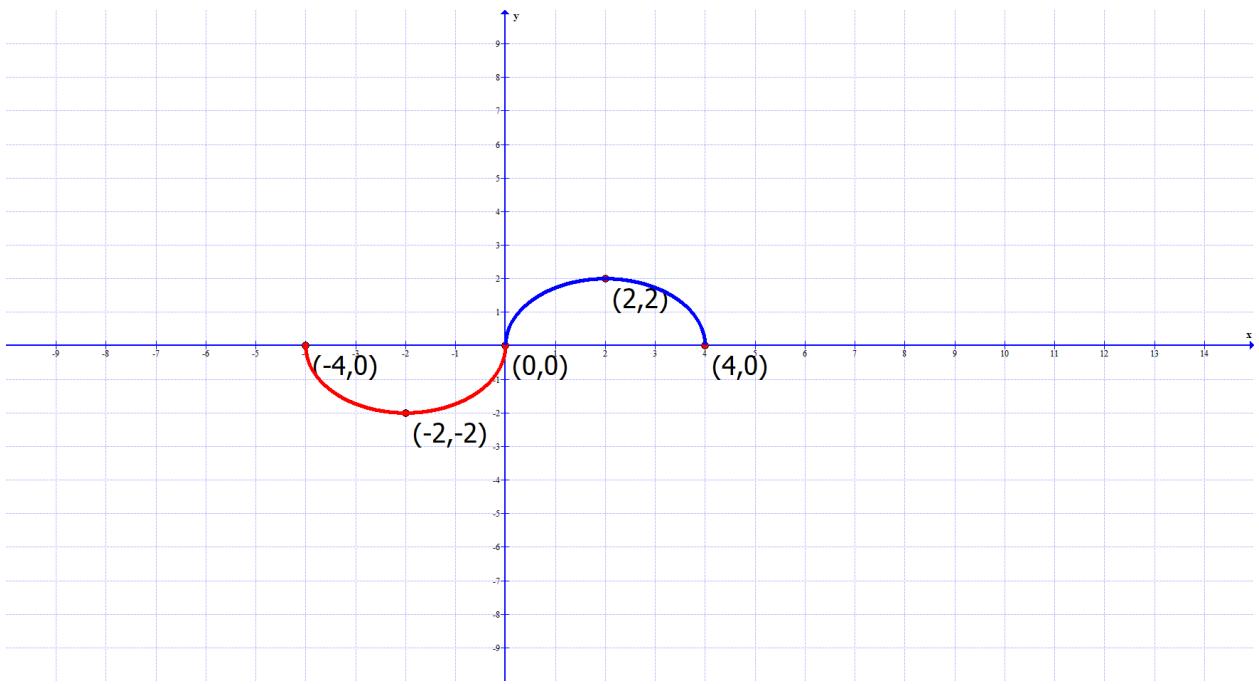
27) $x - axis$ 29) $y - axis$ 31) $origin$

33a) $x - axis\ symmetry$
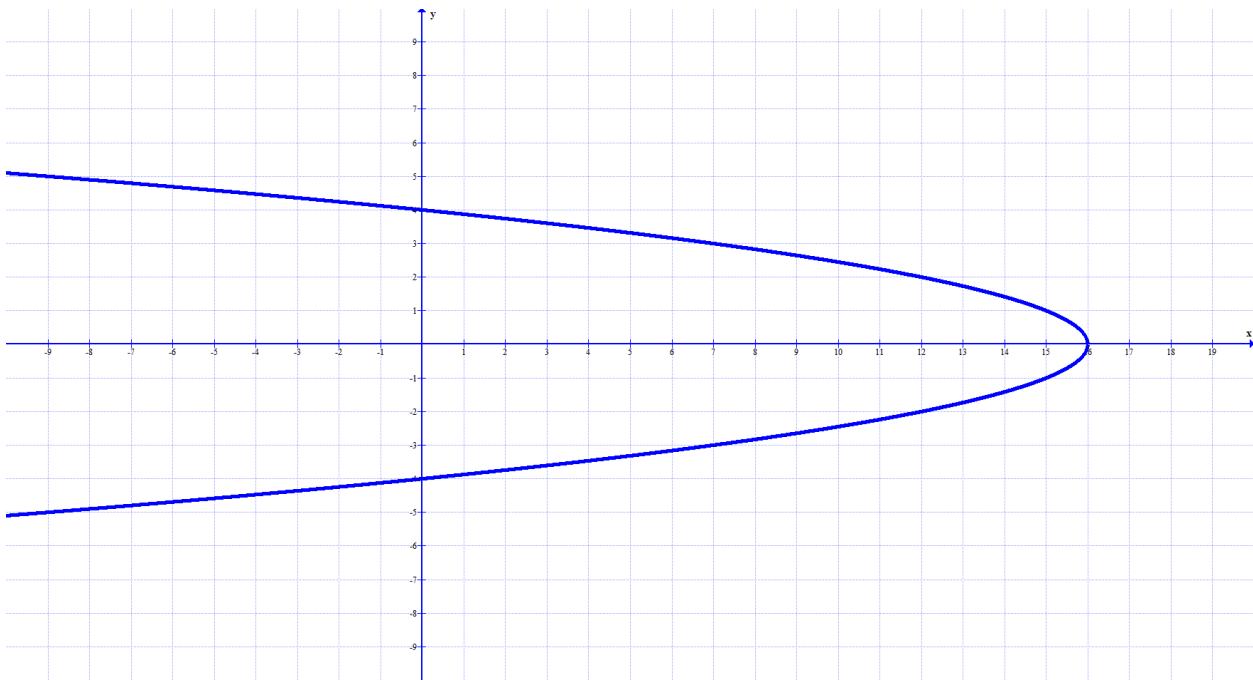
33b) $replace\ y\ with - y, relation\ has\ x\ axis\ symmetry\ if\ reduces\ to\ original\ relation$

$x + (-y)^2 = 16$

$reduces\ to\!: x + y^2 = 16$

$since\ (-y)^2 = y^2$

$it\ reduces\ to\ the\ original\ problem\ and\ this\ proves\ x - axis\ symmetry$

35a) $y - axis\ symmetery$
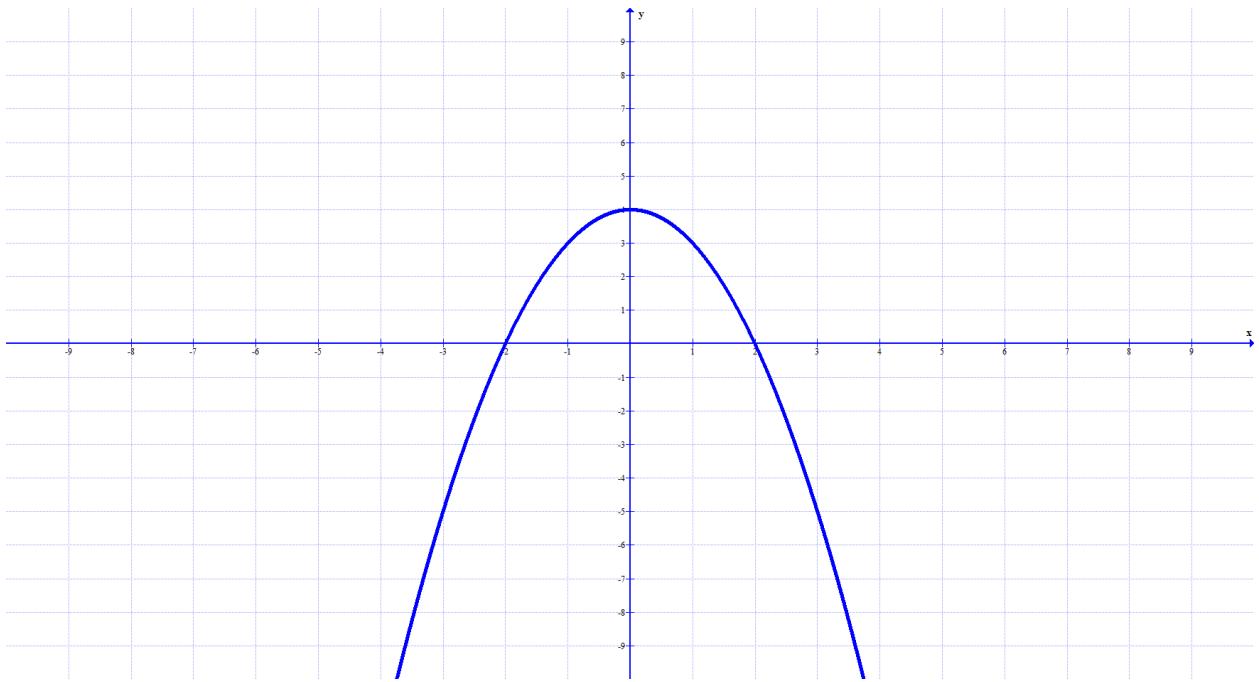
35b) $replace\ x\ with - x,\ relation\ has\ y\ axis\ symmetry\ if\ reduces\ to\ original\ relation$

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

$reduces\ to{:}\ y +\ x^2 = 4$

$since\ (-x)^2 = x^2$

$it\ reduces\ to\ the\ original\ problem\ and\ this\ proves\ y - axis\ symmetry$

37a) *origin symmetry*
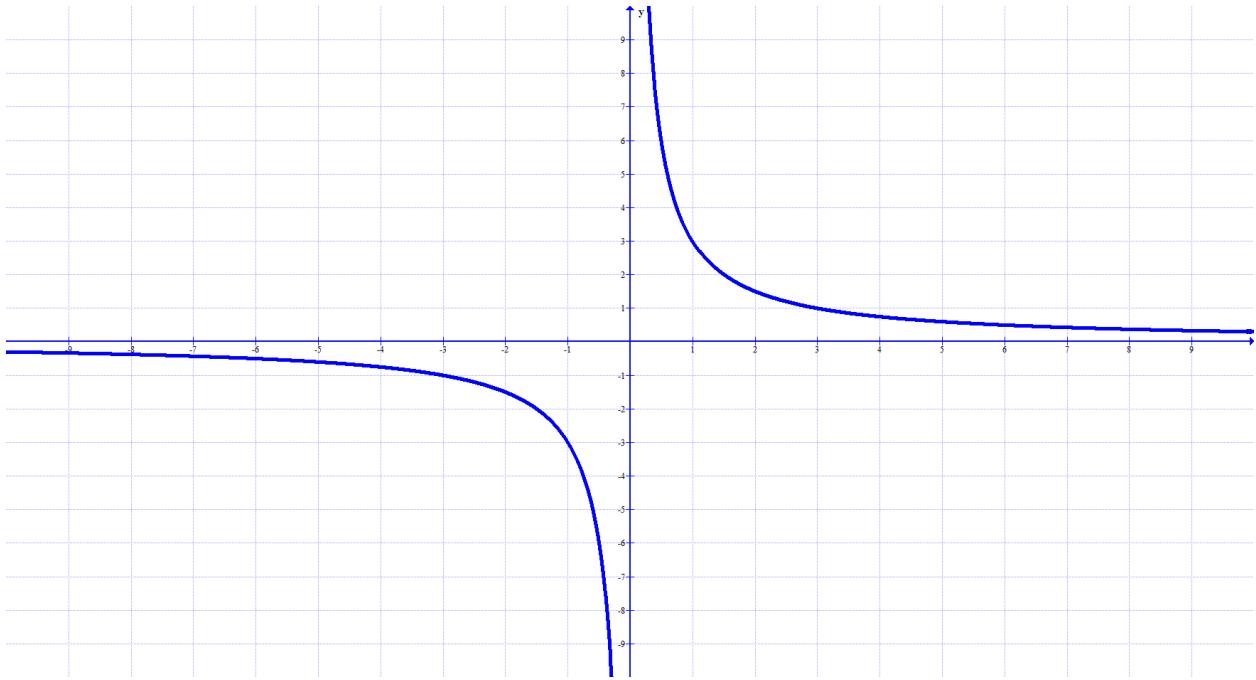
37b) *replace x with − x and y with − y,*
relation has origin symmetry if reduces to original relation

$-y = \frac{3}{-x}$

$-1\left(-y = \frac{3}{-x}\right)$

$-1 * (-y) = -1 * \frac{3}{-x}$

$y = \frac{-1}{1} * \frac{3}{-x}$

$y = \frac{-3}{-x}$

$y = \frac{3}{x}$ *reduces to original, proves origin symmetery*

39a) *none* *(graph has none of the 3 − symmetrys)*
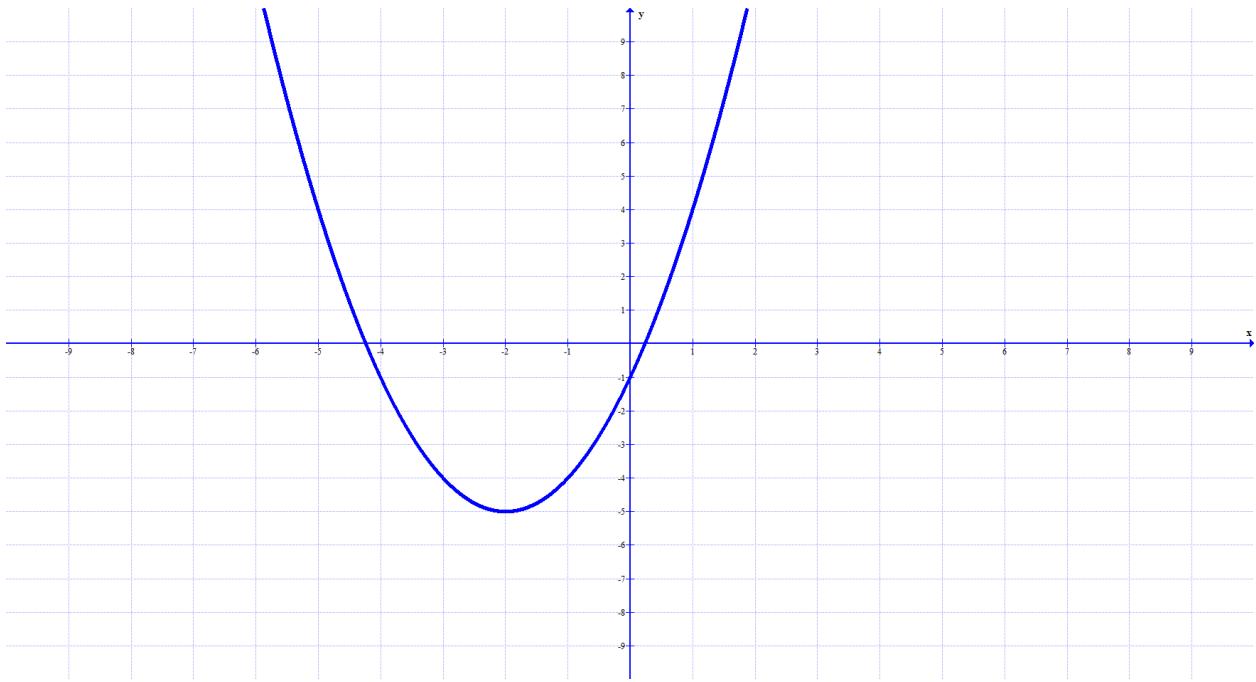
39b) *no test to be done as relation has none of the symmetries*

41) $y = x^2$

x	y
-2	4
-1	1
0	0
1	1
2	4
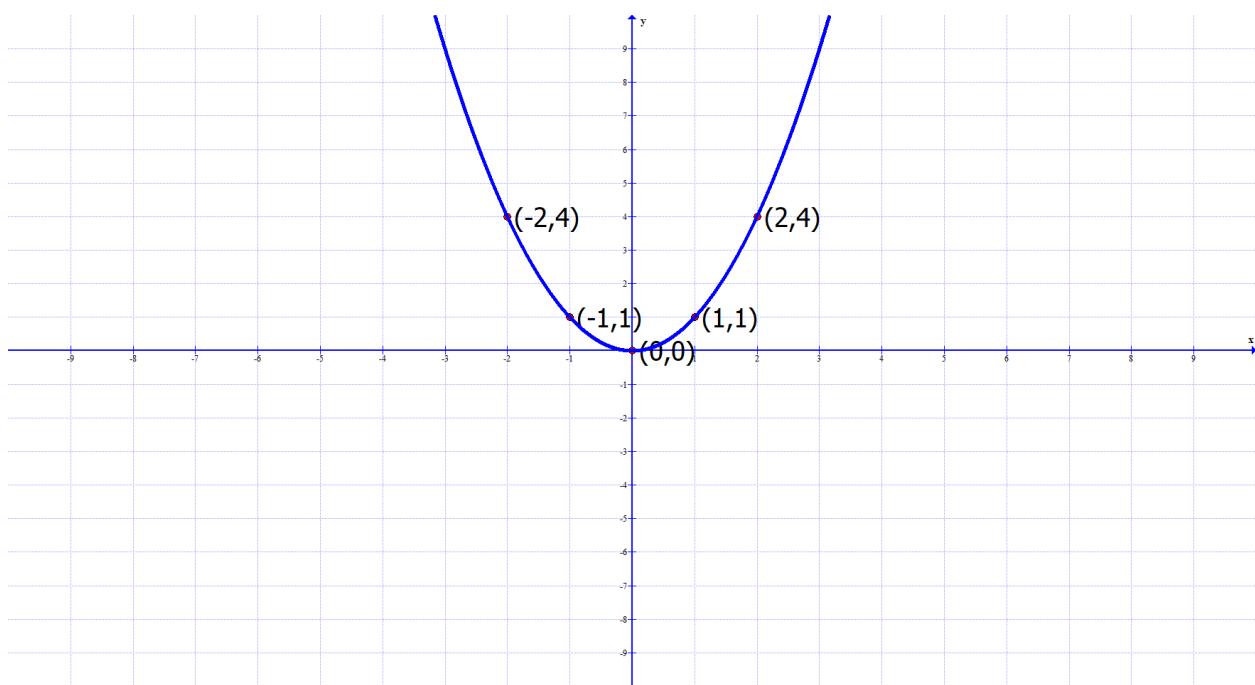
43) $y = \sqrt{x}$

x	y
-2	Not a real number
-1	Not a real number
0	0
1	1
4	2
9	3
16	4