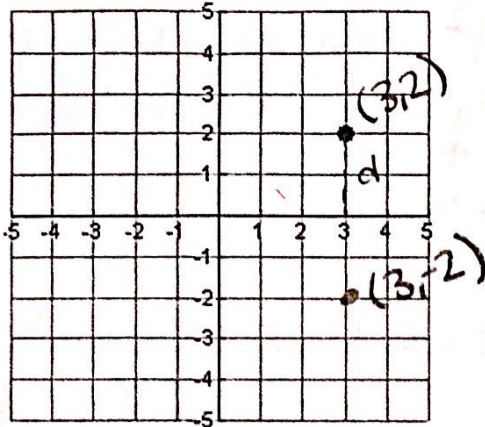
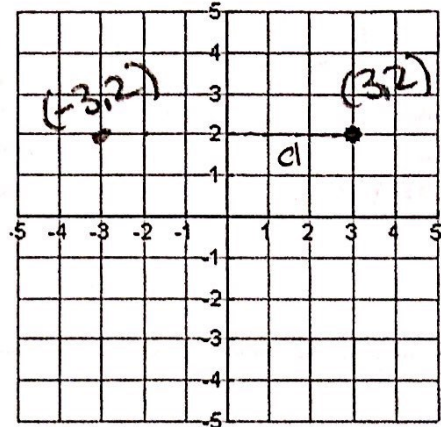


Reflecting Graphs

x-axis



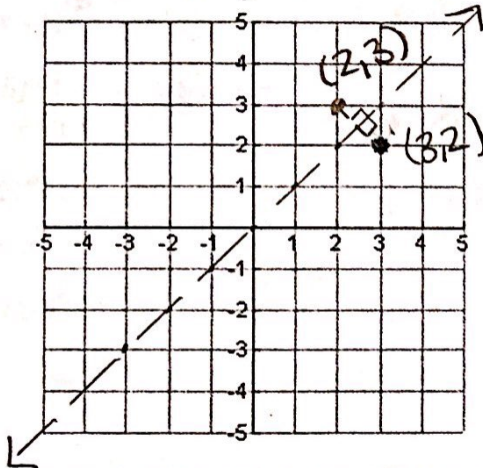
y-axis



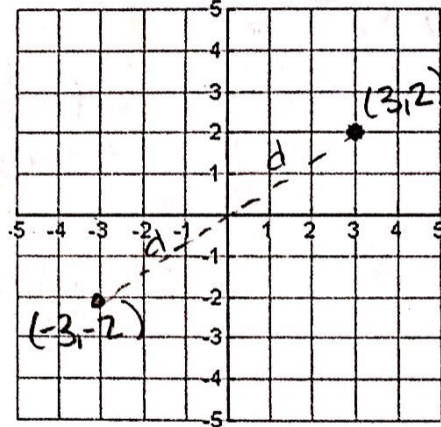
General Rule: $(x, -y)$

General Rule: $(-x, y)$

Line $y = x$



Origin



General Rule: (y, x)

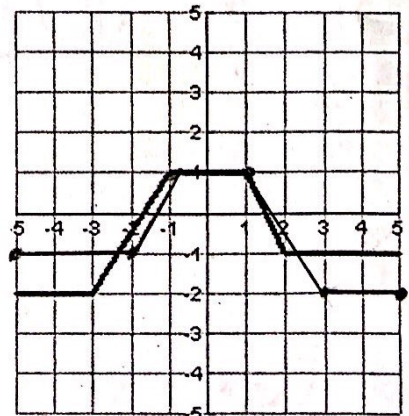
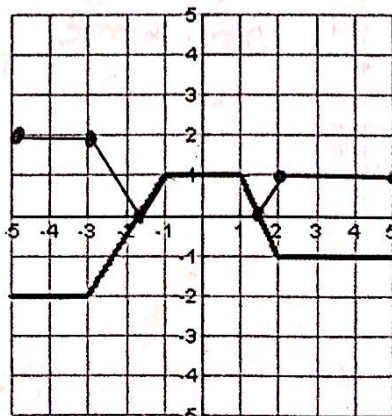
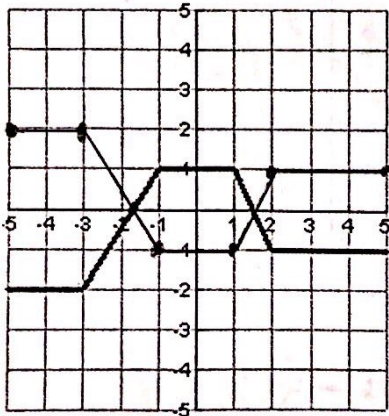
General Rule: $(-x, -y)$

The graph of $y = f(x)$ is given. Sketch the graph of:

$y = -f(x)$ Reflection in x-axis

$y = |f(x)|$ Absolute value of y

$y = f(-x)$ Reflection in y-axis



Does $x^2 - xy + y^2 = 6$ have symmetry to the following? Verify.

a) x-axis $(x, -y)$

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

$$x^2 + xy + y^2 = 6$$

NO

b) y-axis $(-x, y)$

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

$$x^2 + xy + y^2 = 6$$

NO

c) line $y = x$ (y, x)

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

yes

d) origin $(-x, -y)$

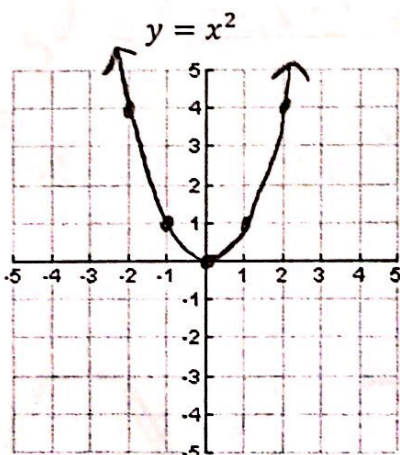
$$(-x)^2 - (-x)(-y) + (-y)^2 = 6$$

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

yes

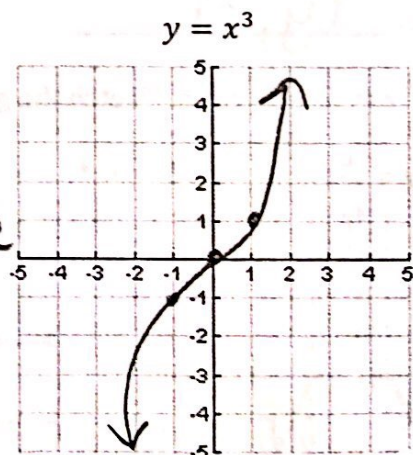
Even and Odd Functions

Even-
Symmetric
about
y-axis



$$f(-x) = f(x)$$

odd-
Symmetry
about the
origin



$$f(-x) = -f(x)$$