~TURN IN ALL WORK AND ANSWERS ON A SEPARATE SHEET(S) OF PAPER.~

Rectangular Coordinate Plate Notes

Parallel Lines (//)—Same Slope
Perpendicular Lines (⊥)—Opposite Reciprocal Slope
Distance Formula— $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
Area of a Triangle— $A = \dfrac{1}{2}bh$
Mid-Point— $M\left(\dfrac{x_1 + x_2}{2}, \dfrac{y_1 + y_2}{2}\right)$
x-intercept — (y = 0)   y-intercept — (x = 0)

II   I

(-,+)   (+,+)

III   IV

(-,-)   (+,-)

Work

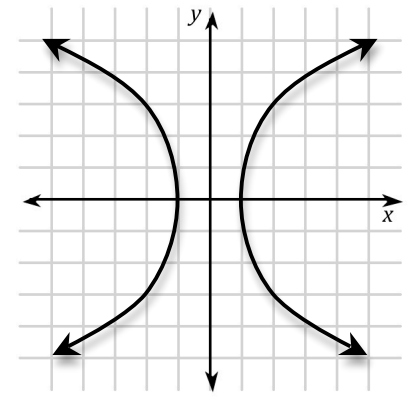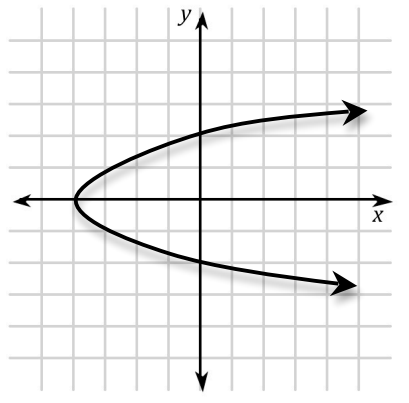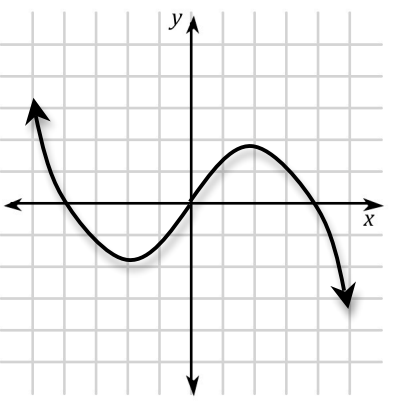| 1) Plot the following points on a coordinate plane. A(2,4),B(-3,1),C(7,-5),D(-1,-7)	2) Find the distance between the following sets of points. A{(2,3),(-4,11)} B{(3,7),(-2,5)}	3) Plot each point and form ΔABC. Verify that the triangle is a right triangle. A(1,1), B(1,5) & C(3,3)
4) Find the midpoint of each set of points. A{(-3,4),(7,10)} B{(4,8),(11,12)}	5) Tell whether the given points are on the graph of the equation. Equation: $y = x^3 - 2\sqrt{x}$ Points: (0,0); (1,1); (1,-1)	6) List all the intercepts of the graph shown:
7) Graph the line: $y = x - 6$	8) Graph the parabola: $y = -x^2 + 4$	9) Graph the line: 2x + 3y = 8

Symmetry Notes

x-axis symmetry——(y) becomes (-y)   (Inverse of range)
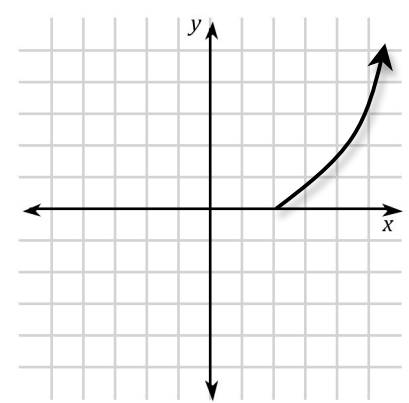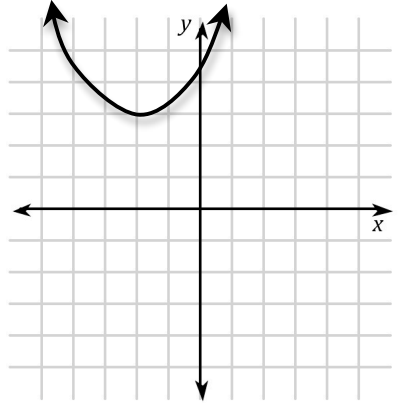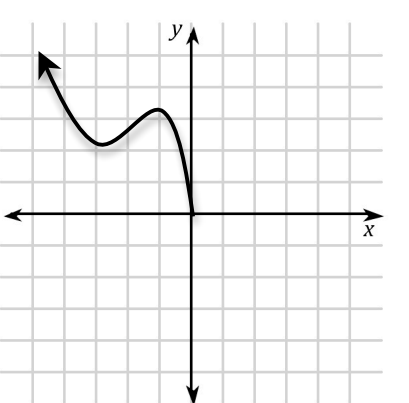y-axis symmetry——(x) becomes (-x)   (Inverse of domain)
symmetry to origin——(y) becomes (-y) and (x) becomes (-x)   (Inverse of range and domain)

Work

Indicate which type of symmetry is shown in each graph.

1)	2)	3)

Complete each graph so it has the symmetry indicated.

4)	5)	6)
symmetry to the y-axis	symmetry to the x-axis	symmetry to the origin
7) Sketch: $y = x^3$	8) Sketch: $x = y^2$	9) Sketch: $y = \sqrt{x}$

Lines Notes

y-int — $x = 0$ x-int — $y = 0$

$$slope = \frac{rise}{run} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} = m$$

point slope form: $y - y_1 = m(x - x_1)$

slope intercept form: $y = mx + b$

// lines have same slope

$\perp$ lines have opposite reciprocal slopes

Work

Find the equation for the line with the given criteria. (Write in slope-intercept form.)

1) slope = 2, goes through (-2,3)	2) goes through (-1,1) and (2,3)	3) x-int @ -3, y-int @ 5
4) // to $y = -3x$ and goes through (-1,2)	5) $\perp$ to $y = 2x - 3$ and goes through (1,-2)	6) y-int @ 2 and slope of $^1/_2$

Find the x and y- intercepts and graph each line.

7) $\frac{1}{2}y = x - 1$	8) $\frac{1}{3}x + y = 2$	9) $2x - 3y = 6$

10) Use slopes to show that the quadrilateral with vertices at (-1,0), (2,3), (1,-2) and (4,1) is a rectangle.