Slope and Linear Relations REVIEW

1. Sketch an example of a:
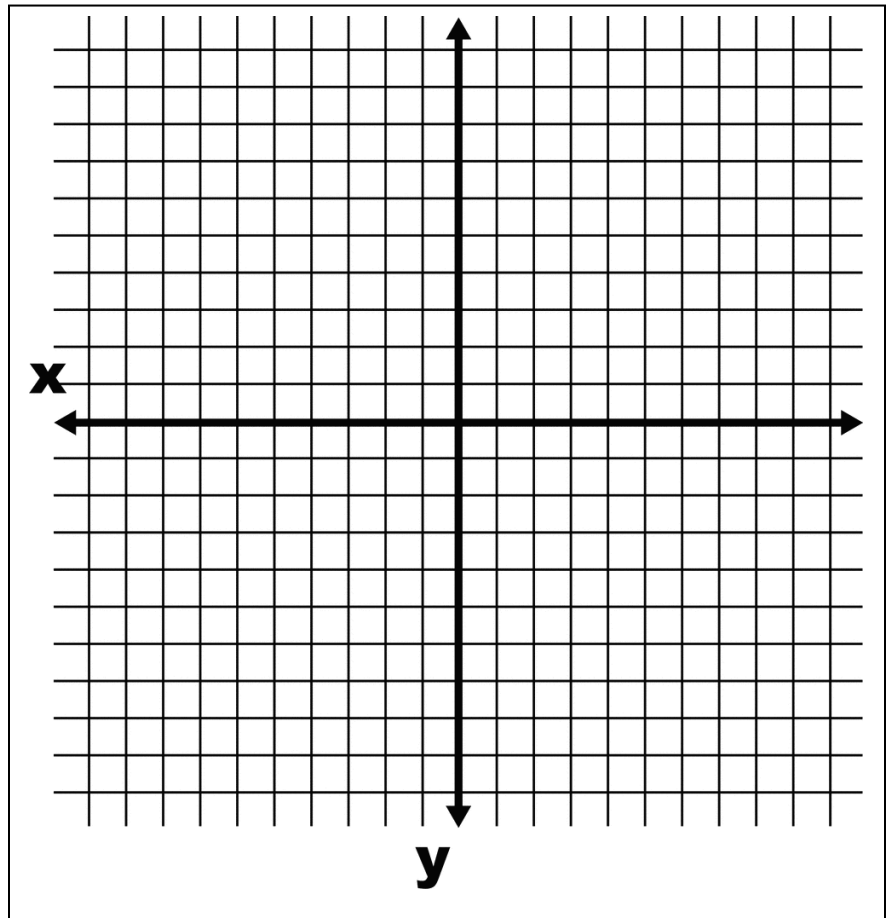
Positive Slope   Negative Slope   Zero Slope   Undefined Slope

2. Plot the points on the graph shown. Sketch a right angle triangle connecting the points. Count the rise and the run. Then use the $m = \frac{rise}{run}$ formula to calculate each slope.

a. A (5, -1) B (-3, 3)

b. C (-6,2) D (-8,4)

c. E (-5,1) F (1,5)

3. Use the slope formula $m = \frac{y_2 - y_1}{x_2 - x_1}$ to calculate the slope of each pair of points.

a. (4, 6) (-2,0)	b. (-4,10) (4,8)	c. (-3,9) (-3,2)

4. The slopes of some line segments are given.

Line A	Line B	Line C	Line D	Line E	Line F
$m = 2/3$	$m = 3/4$	$m = -2/3$	$m = -1/3$	$m = 6/8$	$m = 3/2$

| Line G	Line H	Line I	Line J	Line K	Line L
$m = -3$	$m = 3$	$m = 2/4$	$m = -3/2$	$m = 15/5$	$m = -2$

a. List ALL the pairs of parallel lines.	b. List ALL the pairs of perpendicular lines.

5. Determine the slope and y-intercept of each line:

a. $y = 7x - 2$	b. $y = -\frac{1}{2}x + 5$
c. $y = -3x$	d. $y = 2$

6. Graph each equation from question #5 on the $x - y\ grid$ **on the LEFT.**
   Use a ruler and add arrowheads on each line. Use a different colour to outline each line.
   Label with a,b,c,d.
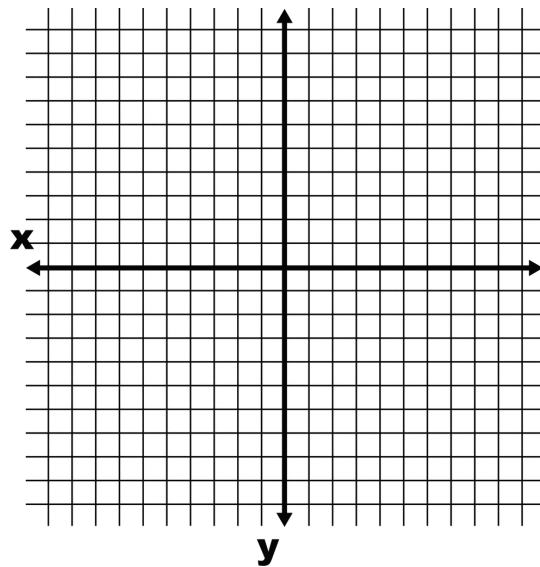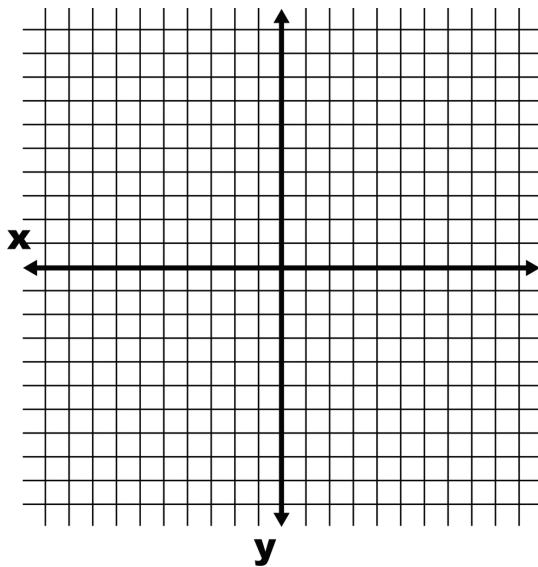
7. Without altering the form that they are written in, graph the following linear equations on the
   $x - y\ grid$ **on the RIGHT** from question #6.
   Use a ruler and add arrowheads on each line. Use a different colour to outline each line.
   Label with e,f,g.

e. $y - 5 = -\frac{1}{2}(x + 2)$	f. $y + 6 = \frac{4}{3}(x - 1)$	g. $3x - 5y + 15 = 0$

8. Write an equation in slope intercept form of a line that has the following properties:

Slope = 4 and y-intercept = -7	Parallel to $y = 4x - 9$ and the same y-intercept as $y = 3x + 1$
Slope = -3/4 and through the point (0,6)	Perpendicular to $y = \frac{2}{5}x - 10$ and a y-intercept of 3

9. Determine the slope and y-intercept of each line:

       a. $3x - 6y - 2 = 0$ b. $4x - 8y + 32 = 0$

10. Determine the x-intercept and y-intercept of the following line: $5x - 2y + 20 = 0$

11. For each pair of points: (1) find the slope, then write an equation in (2) slope point form, (3) slope intercept form, and (4) general form, of the line through each pair of points.

      a. (3,-7) and (-5,9)

      b. (10,-15) and (-2,-12)

      c. (-5,-8) and (-4,-10)

12. Consider the lines $x - 3y + 12 = 0$ and $2x - ay - 14 = 0$.
   a. Determine the value of a if the lines have the same slope.
   b. Determine the value of a if the lines have the same $y - intercept$.