Parallel & Perpendicular Lines

Date:

Using the points given below, determine the slope of the line passing through the points, and determine which pairs of lines are parallel and which pairs are perpendicular.

Notation: If AB is parallel to CD, we write AB || CD.

If AB is perpendicular to CD, we write AB ⊥ CD.

Recall: Slope: $m_{AB} = \frac{y_B - y_A}{x_B - x_A}$ OR $m = \frac{y_2 - y_1}{x_2 - x_1}$

(x_1, y_1)	(x_2, y_2)	Slope (Steps)	Slope
A (–4,7)	B (5,8)	$m_{AB} = \frac{8-7}{5-(-4)} = \frac{1}{5+4}$	$\frac{1}{9}$
C (–4,4)	D (–1,5)		
E (1,10)	F (2,7)		
G (7,–4)	H (10,2)		
I (6,12)	J (9,9)		
K (2,1)	L (6,2)		
M (–3,–3)	N (–2,–1)		
O (–1,–4)	P (4,–6)		
Q (–8,6)	R (–4,10)		
S (–5,2)	T (0,0)		

From the table above, list any lines that are parallel or perpendicular. Use proper notation.

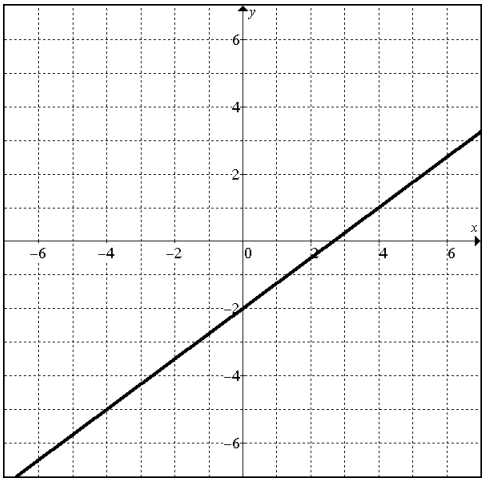
Parallel lines: _____

Perpendicular lines:_____

Parallel & Perpendicular Lines

Date:

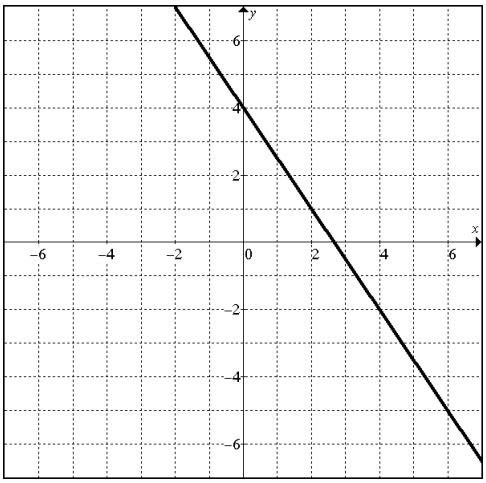
1. State the equation of the line shown on the Cartesian Plane given: _____



   a) Draw 3 lines that are parallel to the given line having y-intercepts of -6, 0 and 4.

   b) Label each of the lines you have drawn with their respective equations.

2. State the equation of the line shown on the Cartesian Plane given: _____



   a) Draw 3 lines that are perpendicular to the given line having y-intercepts of -5, 0 and 2.

   b) Label each of the lines you have drawn with their respective equations.

3. Beside each of the lines below, give its slope. Hint: "*x*-int" in the questions below is short for "*x*-intercept". *Work for these questions may be done on scrap paper.*

   a) The line $y = -2x - 1$ _____

   b) The line through (2,4) and (4,5) _____

   c) The line with *x*-int 5 and *y*-int 3 _____

   d) The line parallel to $y = 7 - \frac{3}{5}x$ _____

   e) The line with rise of 5 and run of 2 _____

   f) The line $y = x + 1$ _____

   g) The line through $(-3,1)$ and $(1,5)$ _____

   h) The line $y = \frac{2}{3}x + 5$ _____

   i) The line with rise of –2 and run 3 _____

   j) The line $\perp$ to $y = -\frac{3}{4}x - 1$ _____

   k) The line through $(4,-4)$ and $(2,-7)$ _____

   l) The line with *x*-int –2 and *y*-int –1 _____

In the space provided, list all pairs of lines from #3 above which are either parallel or perpendicular.

Parallel lines: _____ Perpendicular lines: _____

Answers:

-2 ; $\frac{1}{2}$; $-\frac{3}{5}$; $-\frac{3}{5}$; $\frac{5}{2}$; 1 ; 1 ; $\frac{2}{3}$; $-\frac{2}{3}$; $\frac{4}{3}$; $\frac{3}{2}$; $-\frac{1}{2}$ c $\parallel$ d ; f $\parallel$ g ; a $\perp$ b ; i $\perp$ k