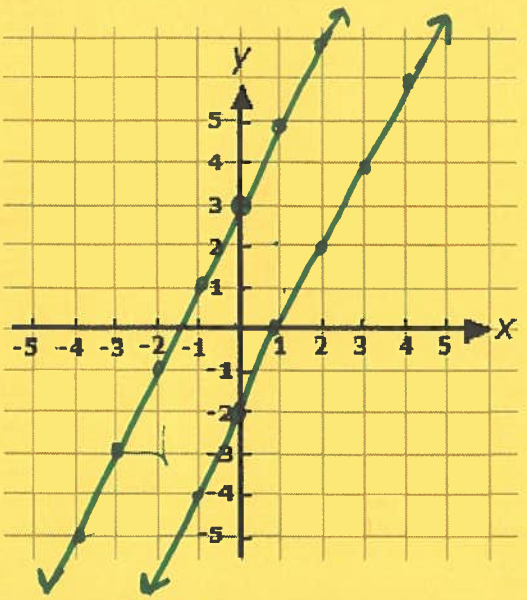
Name: Key Date:_____ Hour:_____

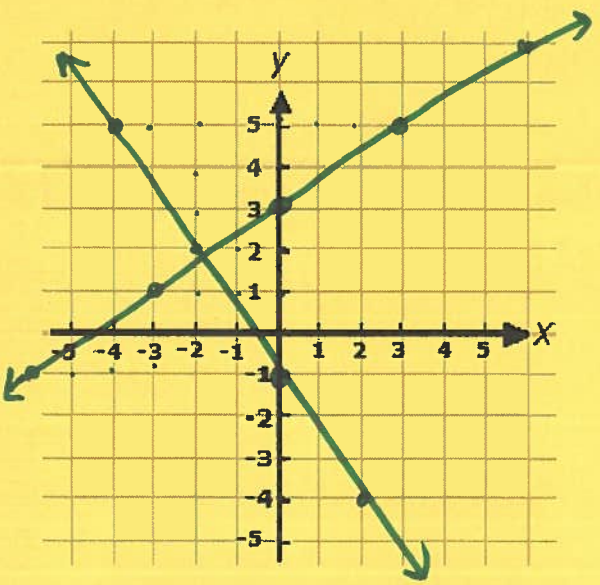
Geometry 3.7 Graphing Parallel and Perpendicular Lines

1.) On the grid below, graph the lines y=2x+3 and y=2x – 2.



2.) What relationship do you notice about the two lines you graphed above? In other words, are the lines parallel, perpendicular, or neither?

3.) On the grid below, graph the lines $y=\frac{2}{3}x+3$ and $y=-\frac{3}{2}x-1$.



4.) What relationship do you notice about the two lines you graphed above? In other words, are the lines parallel, perpendicular, or neither?

From the front page, you should recognize that:

Parallel lines have the **SAME** slopes.

Perpendicular lines have *OPPOSITE RECIPROCAL* slopes.

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Now let's take a look at the 3.7 homework assignment #s 1-31 odds, 35, and 36. P.S. you will NEED YOUR BOOK!

Record your work and answers in the table for #s 1 -11 odd.

Problem	Slope of line 1?	Slope of line 2?	Parallel: yes or no?
1	$-1/2$	$-\frac{1}{2}$	yes
3	$\frac{3}{2}$	2	NO
5	0	0	yes
7	$\frac{3}{4}$	$\frac{3}{4}$	yes
9	Show Work. $y-7x=6$ $y=7x+6$ 7	Show Work. $y+7x=8$ $y=-7x+8$ -7	NO
11	Show Work. $2x+5y=-1$ $\frac{5y}{5}=\frac{-2x-1}{5}$ $-\frac{2}{5}$	Show Work. $\frac{10y}{10}=\frac{4x-20}{10}$ $y=-\frac{4}{10}x-2$ $6x+2y=4$ $-\frac{6x}{2}+\frac{2y}{2}=\frac{4}{2}$ $\frac{2}{5}$	yes

Use the below table to answer 13 and 15.

Problem	Slope of given line	Slope of a parallel line	Given Point	**Equation in Point Slope From**
13	$1/3$	$1/3$	6,0	$y-0=\frac{1}{3}(x-6)$
15	$-\frac{3}{2}$	$-\frac{3}{2}$	6,-2	$y+2=-\frac{3}{2}(x-6)$

Use the table to answer 17 and 19.

Problem	Slope of line 1?	Slope of line 2?	Perpendicular: **yes or no?**
17	$-\frac{3}{2}$	$\frac{2}{3}$	yes
19	$\frac{-1}{1}$	$\frac{1}{1}$	yes

Use the below table to answer 21.

Problem	Slope of given line	Slope of a perpen. line	Given Point	**Equation in Point Slope From**
21	$\frac{1}{2}$	-2	$(4,0)$	$y-0=-2(x-4)$

Challenge *

Use the table below to answer 23. $(1,9)(9,-1)$

Problem	Midpoint P	Slope of MN	**Equation in Point Slope Form**
23	$(1,9)$ $(9,-1)$ $(5,4)$	$\frac{-1-9}{9-1}=\frac{-10}{8}=-\frac{5}{4}$	$y-4=\frac{4}{5}(x-5)$

Use the table to answer 25 and 27.

Problem	Slope of 1st line	Slope of 2nd line	Perpendicular?
25	Show Work. -1	Show Work. $y-x=20$ $y=x+20$ 1	yes opposite Reciprocal
27	Show Work. $2x-7y=-42$ $\frac{-7y}{-7}=\frac{-2x}{-7}-\frac{42}{-7}$ $\frac{2}{7}$	Show Work. $\frac{4y}{4}=\frac{-7x}{4}-\frac{2}{4}$ $-\frac{7}{4}$	yes opposite Reciprocal

Use the table to answer 29 and 31.

Problem	**Slope AB**	*Slope BC*	**Slope CD**	*Slope DA*	Are opposite sides parallel? Explain.
29	$\frac{2}{3}$	-3	$\frac{2}{3}$	-3	yes; opposite sides have equal slopes
31	$\frac{1}{2}$	-1	$\frac{1}{4}$	$-\frac{1}{2}$	No; slopes are not equal

Slope RW

1

Use the table to answer 35.

Slope RS	Slope ST	Slope TU	Slope UV	Slope VW
0	−1	1	0	−1

Which sides are parallel?

$\overline{RW} \parallel \overline{TU}$; $\overline{RS} \parallel \overline{UV}$; $\overline{ST} \parallel \overline{VW}$

Use the table to answer 36.

Slope GH	Slope HK	Slope KG
$\frac{5-2}{8-3} = \frac{3}{5}$	$\frac{10-5}{0-8} = \frac{5}{-8}$	$\frac{2-10}{3-0} = \frac{-8}{3}$

Are any two sides perpendicular? If so, which pair? Would these points plot a right triangle? Explain.

No; none of slopes are opposite reciprocals