Name _____ Test Date _____ Period _____

Chapter 3: Parallel Lines and Transversals

3-4 Parallel and Perpendicular Lines

Parallel and Perpendicular Lines If you examine the slopes of pairs of parallel lines and the slopes of pairs of perpendicular lines, where neither line in each pair is vertical, you will discover the following properties.

- If two lines are parallel then their slopes….

- If two lines are perpendicular then their slopes are…

Slope of a Line The slope m of a line containing two points with coordinates (x_1, y_1) and (x_2, y_2) is given by the formula
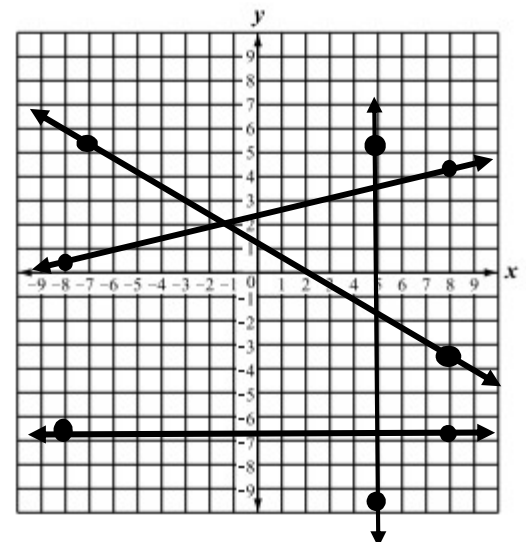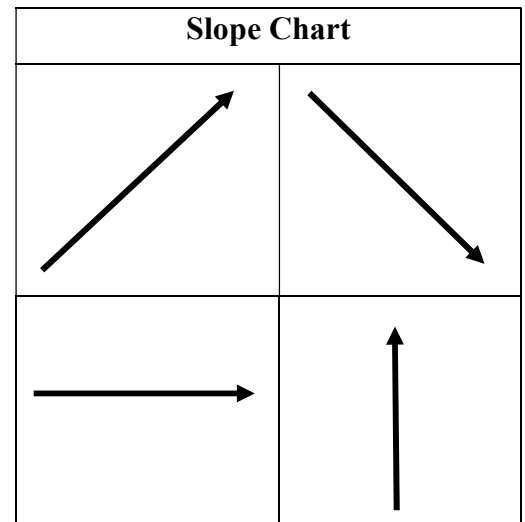
M=

Slope Chart	

Exercises

Determine the slope of the line that contains the given points.

1. $J(0, 0)$, $K(-2, 8)$ 2. $R(-2, -3)$, $S(3, -5)$

Find the slope of each line.

5. $\overleftrightarrow{AB}$ 6. $\overleftrightarrow{CD}$

7. $\overleftrightarrow{EM}$ 8. $\overleftrightarrow{AE}$

Chapter 3: Parallel Lines and Transversals

3-4 Parallel and Perpendicular Lines Cont

Exercises

Determine whether *MN* and *RS* are *parallel*, *perpendicular*, or *neither*. Graph each line to verify your answer.

1. *M*(0, 3), *N*(2, 4), *R*(2, 1), *S*(8, 4)

2. *M*(-1, 3), *N*(0, 5), *R*(2, 1), *S*(6, -1)

Graph the line that satisfies each condition.

4. slope = 4, passes through (6, 2)

5. passes through *H*(8, 5), **perpendicular** to *AG* with *A*(−5, 6) and *G*(−1, −2)

Slope of *AG:*

Slope of new line: