Name: Key 22 Hour: _____

Equations and Slopes of Parallel and Perpendicular Lines: HW #2

Determine whether $\overleftrightarrow{MN}$ and $\overleftrightarrow{RS}$ are *parallel*, *perpendicular*, or *neither*.

1. $M(-2, 2), N(1, -3), R(-2, 1), S(3, 4)$ +3 +3

Perpendicular

Slope MN: $-5/3$

Slope RS: $3/5$

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

Slope MN: 2

Slope RS: $1/2$

Neither

Find the slope of $\overleftrightarrow{MN}$ and the slope of any line perpendicular to $\overleftrightarrow{MN}$.

+2 3. $M(4, -2), N(5, 3)$

Slope of $\overleftrightarrow{MN}$: 5

$\perp$ slope: $-1/5$

+2 4. $M(2, -3), N(-4, 1)$

Slope of $\overleftrightarrow{MN}$: $-2/3$

$\perp$ slope: $3/2$

+2 5.) Write the equation of a line in slope intercept and point slope form which pass through the points A(5,1) and B(8,-2)

Slope intercept

$\frac{-2-1}{8-5} = \frac{-3}{3}$ $m = -1$

$-2 = -1(8) + b$ $b = b$

$y = -x + 6$

Point-Slope

$y - 1 = -1(x - 5)$

OR

$y + 2 = -1(x - 8)$

+2 6.) Write the equation of a line in slope intercept and point slope form which pass through the points A(-5,-2) and B(-8,-2)

Slope intercept

$\frac{-2--2}{-8--5} = \frac{0}{-3}$ $m = 0$

$y = -2$

Point-Slope

$y + 2 = 0(x + 8)$

$y + 2 = 0$

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+2 7.) Write the equation of a line in slope intercept AND point-slope form which is parallel to $y = -\frac{1}{2}x - 6$ and passes through the point (-3,2).

Slope intercept

$m_{//} = -\frac{1}{2}$

$2 = -\frac{1}{2}(-3) + b$

$\frac{1}{2} = b$

$y = -\frac{1}{2}x + \frac{1}{2}$

Point-Slope

$y - 2 = -\frac{1}{2}(x + 3)$

+2 8.) Write the equation of a line in slope intercept AND point-slope form which is parallel to $y = -2x - 7$ and passes through the point (-1,-2).

$m_{//} = -2$

Slope intercept

$-2 = -2(-1) + b$

$-4 = b$

$y = -2x - 4$

Point-Slope

$y + 2 = -2(x + 1)$

+2 9.) Write the equation of a line in slope intercept AND point-slope form which is perpendicular to $2x + y = 5$ and passes through the point (2,-2).

$m = -2$

$m_{\perp} = \frac{1}{2}$

Slope intercept

$-2 = \frac{1}{2}(2) + b$

$-3 = b$

$y = \frac{1}{2}x - 3$

Point-Slope

$y + 2 = \frac{1}{2}(x - 2)$

+2 10.) Write the equation of a line in slope intercept AND point-slope form which is perpendicular to $-\frac{2}{3}x - y = 15$ and passes through the point (0,-15).

$m = \frac{2}{3}$

$m_{\perp} = -\frac{3}{2}$

Slope intercept

$-15 = -\frac{3}{2}(0) + b$

$b = -15$

$y = -\frac{3}{2}x - 15$

Point-Slope

$y + 15 = -\frac{3}{2}x$

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