

3.5/3.6 REVIEW

Day 9



Before we get started... write down...

- Slope Formula
- Slope-Intercept Form
- Point-Slope Form
- Parallel lines have the _____ slope
- Perpendicular lines have _____ slopes

1) If line AB has a slope $m = \frac{-5}{7}$ and $A(-3,6)$ and $B(x, 1)$, what is the value of x ?

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$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{-5}{7} = \frac{1 - 6}{x - (-3)}$$

$$\frac{-5}{7} = \frac{-5}{x + 3}$$

$$-5(x + 3) = -35$$

$$-5x - 15 = -35$$

$$-5x = -20$$

$$x = 4$$

2) Write an equation in slope intercept form that passes through the point $(-2,1)$ and has a slope of $\frac{1}{2}$.

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$$y = mx + b$$

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

$$1 = -1 + b$$

$$2 = b$$

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

3) Write an equation in **point-slope form** that passes through the points (-3, 8) and (1, 2).

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(-3, 8) and (1, 2). $m = \frac{8-2}{-3-1} = \frac{6}{-4} = -\frac{3}{2}$

$$y - 8 = -\frac{3}{2}(x + 3)$$

OR

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

4) Write an equation of a line in **slope-intercept form** that passes through the points (-3,7) and (6, -11).

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$$m = \frac{7+11}{-3-6} = \frac{18}{-9} = -2$$

$$7 = -2(-3) + b$$

$$7 = 6 + b$$

$$1 = b$$

$$y = -2x + 1$$

5) Determine whether \overleftrightarrow{AB} and \overleftrightarrow{CD} are parallel, perpendicular, or neither given...

• A(-6, 2) and B(-10, 4)

• C(10, 16) and D(-6, 8)

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• A(-6, 2) and B(-10, 4)

• C(10, 16) and D(-6, 8)

$$m_{\overleftrightarrow{AB}} = \frac{4-2}{-10-6} = \frac{2}{-16} = -\frac{1}{8}$$

$$m_{\overleftrightarrow{CD}} = \frac{8-16}{-6-10} = \frac{-8}{-16} = \frac{1}{2}$$

Neither! Slopes are not same or opp. reciprocals

6) Write an equation of a line in **slope-intercept form** that is **parallel** to the line $4y = 8x + 24$ and goes through the point $(3,5)$.

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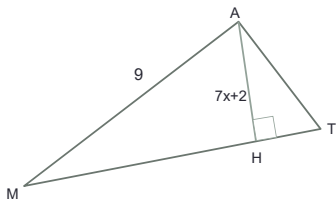
$$\begin{array}{l} \text{Find } m \\ \frac{4y}{4} = \frac{8x+24}{4} \\ y = 2x + 6 \\ \boxed{m=2} \end{array} \quad \begin{array}{l} \text{Find } b \\ y = mx + b \\ 5 = 2(3) + b \\ 5 = 6 + b \\ -1 = b \\ \boxed{-1=b} \end{array} \quad \boxed{y = 2x - 1}$$

7) Write an equation of a line in **point-slope form** that is **perpendicular** to the line $2x - 6y = 12$ and goes through the point $(-1, -2)$

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$$\begin{array}{l} \text{Find } m \\ 2x - 6y = 12 \\ \frac{-6y}{-6} = \frac{-2x+12}{-6} \\ y = \frac{1}{3}x - 2 \\ \perp m = -3 \end{array} \quad \begin{array}{l} y - y_1 = m(x - x_1) \\ y - (-2) = -3(x - (-1)) \\ \boxed{y + 2 = -3(x + 1)} \end{array}$$

8) Find the restrictions on x .



8) Solve the inequality

$$\begin{array}{l} 7x+2 < 9 \\ 7x < 7 \\ x < 1 \end{array} \quad \begin{array}{l} 7x+2 > 0 \\ 7x > -2 \\ x > -2/7 \end{array} \quad \boxed{-\frac{2}{7} < x < 1}$$

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BD = shortest segment

$13 < 2x - 1$
 $14 < 2x$
 $7 < x$

$2x - 1 > 0$
 $2x > 1$
 $x > 1/2$

So... $x > 7$
 most restrictive inequality

10.) Find x.

• Given: $a \parallel b$
 $m \angle 2 = x^2 + 3x + 86$

10.) Find x. *If // lines, then corr \angle s \cong .*

• Given: $a \parallel b$
 $m \angle 2 = x^2 + 3x + 86$

$x^2 + 3x + 86 = 90$
 $x^2 + 3x - 4 = 0$
 $(x + 4)(x - 1) = 0$
 $x = -4, x = 1$