DAY 9 - 3.6 HOMEWORK NAME Key

1. Determine if the lines are parallel, perpendicular or neither.

Given: $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ A(2, -1), B(7, 2), C(2, -3) D(-3, -6)

$m_{AB} = \frac{2-(-1)}{7-2} = \frac{3}{5}$

$m_{\overleftrightarrow{CD}} = \frac{-6-3}{-3-2} = \frac{-3}{-5} = \frac{3}{5}$

Slopes are the same. Therefore, the lines are parallel.

2. Write an equation of a line in **slope-intercept form** that passes through the points (5,2) and (-2, 2).

1st $m = \frac{2-2}{-2-5} = \frac{0}{-7} = 0$

$m = 0$

2nd Find "b"

$2 = -2(0) + b$

$2 = 0 + b$

$2 = b$

3rd $y = mx + b$

$y = 0x + 2$

$y = 2$

Bonus! What type of line is this??!

3. Write an equation of a line in **point-slope form** with x-intercept 3 and y-intercept -5.

1st $m = \frac{-5-0}{0-3} = \frac{-5}{-3} = \frac{5}{3}$

$m = 5/3$

2nd $y - y_1 = m(x - x_1)$ (3,0) (0,-5)

$y - 0 = \frac{5}{3}(x - 3)$ or $y + 5 = \frac{5}{3}(x - 0)$

$y = 5/3(x-3)$ or $y+5 = 5/3(x)$

4. Write an equation of a line in **point-slope form** that has a slope of ½ and an x-intercept of -3.

$m = \frac{1}{2}$ (-3,0) x_1, y_1

$y - y_1 = m(x - x_1)$

$y - 0 = \frac{1}{2}(x + 3)$

5. Write an equation of a line in **slope-intercept form** that passes through (5, -2) and has a slope of 2/3.

$m = 2/3$

point = (5, -2) x, y x_1, y_1

1st Find "b"

$-2 = \frac{2}{3}(5) + b$

$-2 = \frac{10}{3} + b$

$-\frac{10}{3} \quad -\frac{10}{3}$

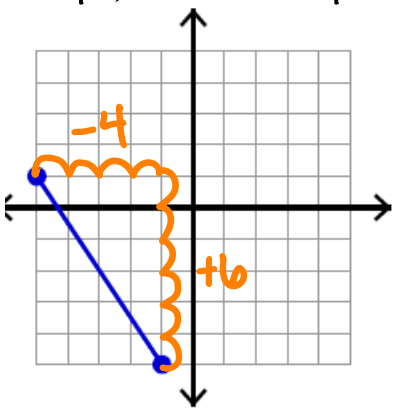
$-16/3 = b$

2nd $y = mx + b$

$y = \frac{2}{3}x - \frac{16}{3}$

Given the Graph, what is the slope of the line?

6.

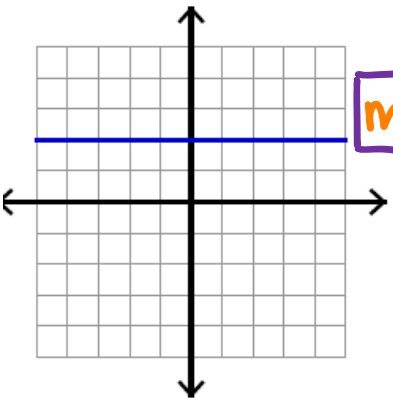


$m = \frac{\text{rise}}{\text{run}}$

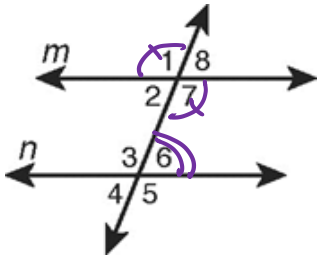
$m = \frac{6}{-4}$

$m = 3/-2$

7.

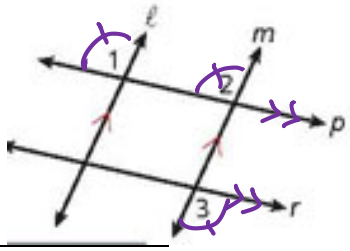


$m = 0$



6. Given: $\angle 1$ and $\angle 6$ are supplementary
   Prove: $m \parallel n$

Statements	Reasons
① ∠1 supp ∠6	① Given
② ∠1 ≅ ∠7	② If vertical ∠s, then ≅
③ ∠7 supp ∠6	③ Substitution Property
④ m ∥ n	④ If same side int. ∠s supp, then lines ∥.

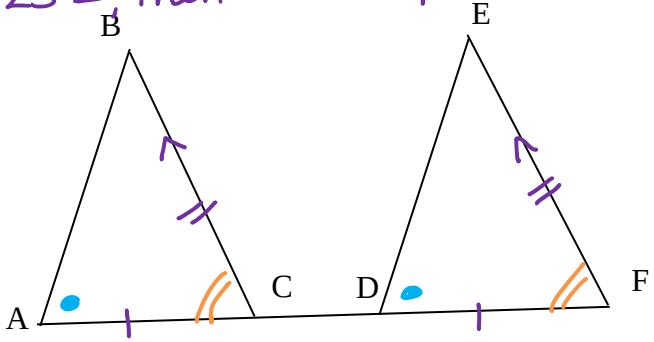


7. Given: $p \parallel r, \angle 1 \cong \angle 3$
   Prove: $l \parallel m$

Statements	Reasons
① p ∥ r	① Given
② ∠1 ≅ ∠3	② Given
③ ∠2 ≅ ∠3	③ If ∥ lines, then alt. ext. ∠s ≅.
④ ∠1 ≅ ∠2	④ Transitive Prop.
⑤ l ∥ m	⑤ If corr. ∠s ≅, then lines are parallel.

8. Given: $\overline{BC} \parallel \overline{EF}$
   $\overline{AC} \cong \overline{DF}$
   $\overline{BC} \cong \overline{EF}$

   Prove: $\overline{AB} \parallel \overline{DE}$



Statements	Reasons
① $\overline{BC} \parallel \overline{EF}$	① Given
② ∠C ≅ ∠F (–)	② If ∥ lines, then corr ∠s ≅.
③ $\overline{AC} \cong \overline{DF}$ (S)	③ Given
④ $\overline{BC} \cong \overline{EF}$	④ Given
⑤ △ABC ≅ △DEF	⑤ SAS
⑥ ∠A ≅ ∠D	⑥ CPCTC
⑦ $\overline{AB} \parallel \overline{DE}$	⑦ If corr ∠s ≅, then lines ∥.