Transversals

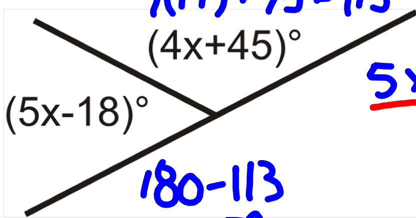
CP Geometry

Name:_____

Multiplying Fractions & Transversals

Date:

Warm-Up: Solve for x and find the measure of each angle.



Supplementary, Adjacent
Linear Pair

$5x - 18 + 4x + 45 = 180°$

$9x + 27 = 180$

$-27 \quad -27$

$\frac{9x}{9} = \frac{153}{9}$

$x = 17$

Multiplying Fractions
When multiplying fractions we can: multiply across the top and bottom If we do this, we need to make sure to Simplify!!! Another thing that we can do is Cross-Canceling. **Steps:** 1. Look at the numbers diagonal from each other in your problem. 2. Find a factor that they have in common and divide them both by that number 3. Cross out the numbers and write the new numbers you got after you divided. 4. Multiply across the top and the bottom. 5. Simplify if needed.

Example: Find the reciprocal of each number.

a. $\frac{7}{16} \times \frac{4}{5}$

$4 \div 4 = 1$

$16 \div 4 = 4$

$\frac{7}{4} \times \frac{1}{5} = \frac{7}{20}$

b. $\frac{5}{6} \times \frac{7}{15}$

$5 \div 5 = 1$

$15 \div 5 = 3$

$\frac{1}{6} \times \frac{7}{3} = \frac{7}{18}$

c. $\frac{5}{18} \times \frac{9}{10}$

$5 \div 5 = 1$

$10 \div 5 = 2$

$9 \div 9 = 1$

$18 \div 9 = 2$

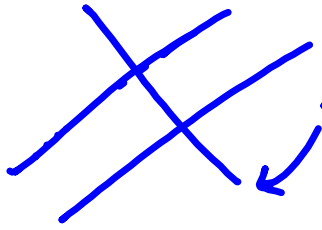
$\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

d. $\frac{6}{15} \times \frac{5}{12}$

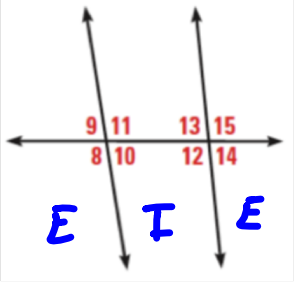
$\frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$

Practice!

1. $\frac{16}{30} * \frac{2}{4}$
2. $\frac{12}{22} * \frac{7}{14}$
3. $\frac{4}{7} * \frac{8}{9}$
4. $\frac{3}{4} * \frac{8}{9}$
5. $\frac{5}{12} * \frac{8}{15}$
6. $\frac{11}{6} * \frac{18}{33}$
7. $\frac{3}{5} * \frac{7}{12}$
8. $\frac{18}{5} \div \frac{11}{6}$
9. $\frac{1}{4} * \frac{8}{3}$
10. $\frac{13}{15} * \frac{45}{26}$

Word	Definition	Picture/Symbol/Example
Transversal	A line that cuts through 2 other Lines	
Corresponding Angles	-Two angles on the same side of the transversal -1 on the interior 1 on the exterior	
Alternate Exterior Angles	-2 angles on opposite sides of the transversal -Both on the exterior	
Alternate Interior Angles	-opposite sides of the transversal -Both on the interior	
Same Side Interior Angles (Consecutive Interior Angles)	-2 angles on the same side of the transversal -Both on the inside	

Example 1: Complete the statement with corresponding, alternate interior, alternate exterior or same side interior.



a. ∠8 and ∠12 are Corresponding angles.

b. ∠9 and ∠14 are AEA angles.

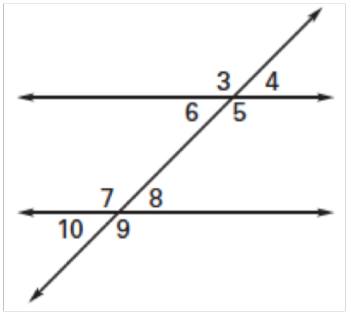
c. ∠10 and ∠12 are Same Side Interior angles.

d. ∠11 and ∠12 are Alternating Interior angles.

e. ∠8 and ∠15 are Alternate Exterior angles.

f. ∠10 and ∠14 are Corresponding angles.

Example 2: Complete the statement with corresponding, alternate interior, alternate exterior or same side interior.



a. 5 and ∠8 are _____ angles.

b. ∠3 and ∠7 are _____ angles.

c. ∠4 and ∠10 are _____ angles.

d. ∠8 and ∠6 are _____ angles.

e. ∠9 and ∠5 are _____ angles.

f. ∠5 and ∠7 are _____ angles.

Transversals with Parallel Lines

Page 6

Date:

Warm-Up:

a. $\frac{5}{16} * \frac{10}{25}$ Mendes

$5 \div 5 = 1$

$25 \div 5 = 5$

$\frac{10}{80} = \frac{1}{8}$

b. $\frac{3}{14} * \frac{7}{18}$ Victoria

$\frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$

$3 \div 3 = 1$

$18 \div 3 = 6$

$7 \div 7 = 1$

$14 \div 7 = 2$

c. $\frac{2}{11} * \frac{22}{24}$ Safia

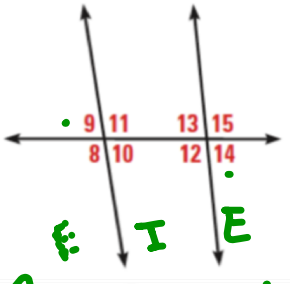
$22 \div 11 = 2$

$24 \div 8 = 3$

$\frac{2}{3}$

From last time…

Example 1: Complete the statement with corresponding, alternate interior, alternate exterior or same side interior.



a. ∠8 and ∠12 are Corresponding angles.

b. ∠9 and ∠14 are Alternate Exterior angles.

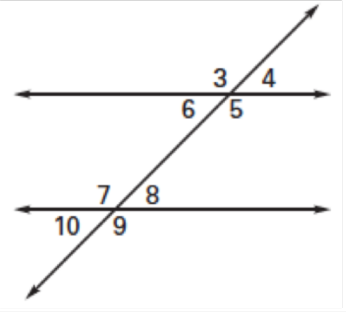
c. ∠10 and ∠12 are Same Side interior angles.

d. ∠11 and ∠12 are Alternate Interior angles.

e. ∠8 and ∠15 are A.E. angles.

f. ∠10 and ∠14 are Corresponding angles.

Example 2: Complete the statement with corresponding, alternate interior, alternate exterior or same side interior.



a. 5 and ∠8 are _____ angles.

b. ∠3 and ∠7 are _____ angles.

c. ∠4 and ∠10 are _____ angles.

d. ∠8 and ∠6 are _____ angles.

e. ∠9 and ∠5 are _____ angles.

f. ∠5 and ∠7 are _____ angles.

Relationships Between Angles Created by Transversals

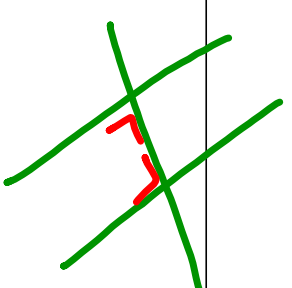
If two ***parallel lines*** are cut by a transversal then….

Corresponding angles are Congruent (same size).

Alternate interior angles are Congruent.

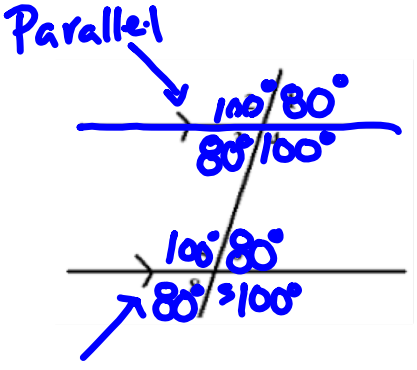
Alternate exterior angles are Congruent.

Same side interior angles are Supplementary (add up to 180).

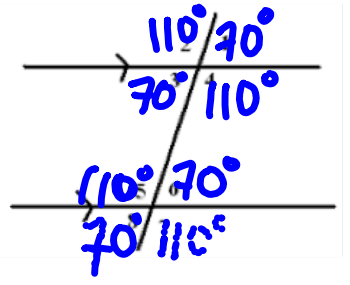


Examples:

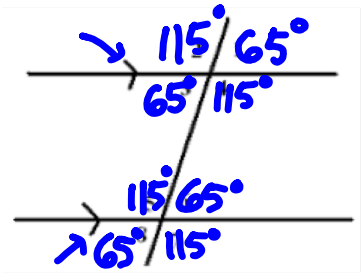
1. Find each missing angle measure if $m\angle 2 = 100°$



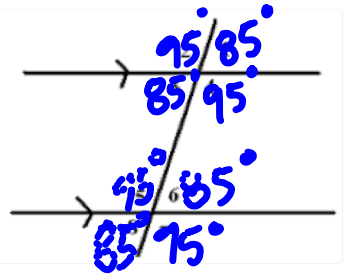
2. Find each missing angle measure if $m\angle 3 = 70°$



3. Find each missing angle measure if $m\angle 6 = 65°$



4. Find each missing angle measure if $m\angle 7 = 95°$



5. Find each value:

$m\angle 5 =$ _____

$m\angle 6 =$ _____

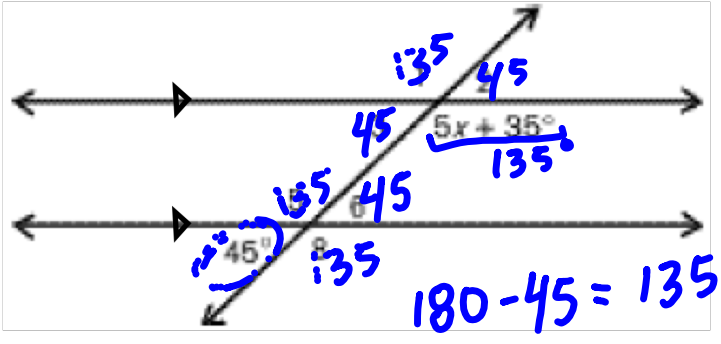
$m\angle 8 =$ _____

$m\angle 1 =$ _____

$m\angle 2 =$ _____

$m\angle 3 =$ _____

$x =$ _____



$5x + 35 = 135$

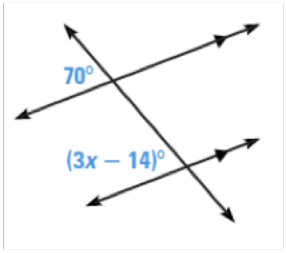
$-35 \quad -35$

$\frac{5x}{5} = \frac{100}{5}$

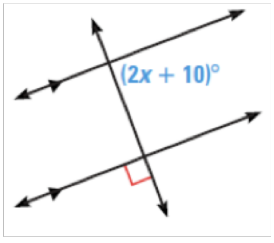
$x = 20$

6. Write an equation relating the given angles. Then find the value of x.

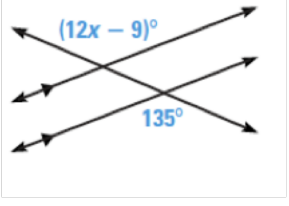
a. $x =$ _____



b. $x =$ _____



c. $x =$ _____



<u>On Your Own:</u>

Identify each pair of angles as: corresponding, alternate interior, alternate exterior, same side interior or vertical angles.

1. ∠1 and ∠5

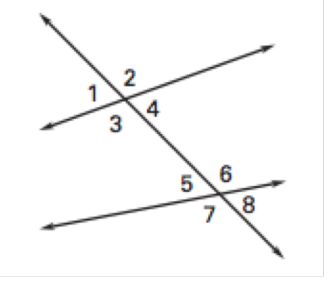
2. ∠2 and ∠7

3. ∠3 and ∠6

4. ∠8 and ∠5

5. ∠4 and ∠6

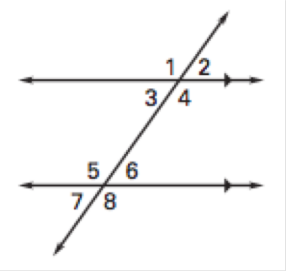
6. ∠8 and ∠4



Explain in your own words why each of the following statements is true.

7. $\angle 3 \cong \angle 7$

8. $\angle 3 \cong \angle 6$

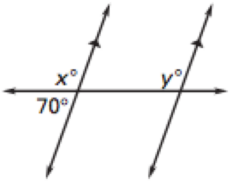


9. $\angle 2 \cong \angle 7$

10. $m\angle 4 + m\angle 6 = 180°$

Find the value of x and y.

11.



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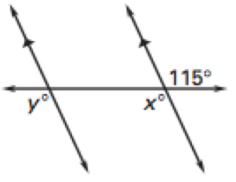

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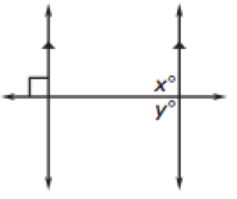

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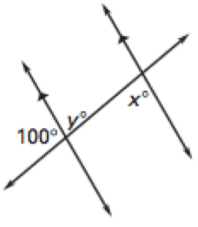

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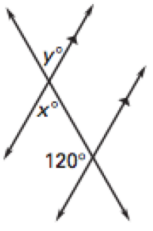

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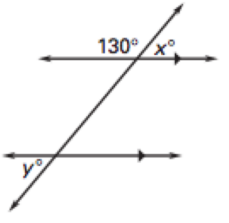

Dividing Fractions & Proving Parallel Lines

Assessment 3
↳ Oct. 28

Date:

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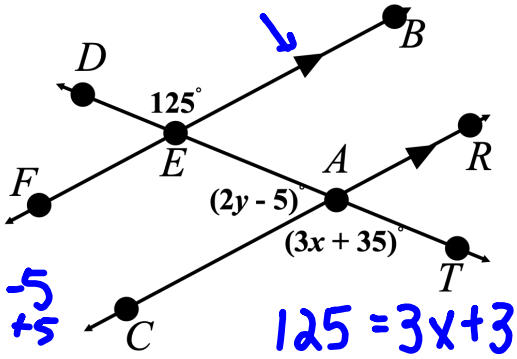
Warm-Up: Evaluate

1. Find the measure of each angle:

$m\angle FET =$ 125°
$m\angle FED =$ 55°
$m\angle BET =$ 55°
$m\angle EAR =$ 125°
$m\angle CAT =$ 125°
$m\angle RAT =$ 55°
$m\angle CAD =$ 55°



Solve for x and y:

$55 = 2y - 5$
$+5 \quad +5$
$\frac{60}{2} = \frac{2y}{2}$
$30 = y$

$125 = 3x + 35$
$\frac{90}{3} = \frac{3x}{3}$
$30 = x$

Dividing Fractions

Dividing by a fraction is the same as multiplying by the reciprocal

Two numbers are reciprocal if: ex: $\frac{3}{4} \times \frac{4}{3} = 1$

Practice!

11. $8 \div 2 = 4$

12. $8 \div \frac{1}{2}$

$\frac{8}{1} \times \frac{2}{1} = \frac{16}{1} = 16$

3. $\frac{1}{2} \div \frac{3}{2}$ (switch, keep, flip)

$\frac{1}{\cancel{2}_{1}} \times \frac{\cancel{2}^{1}}{3} = \frac{1}{3}$

4. $\frac{3}{10} \div \frac{9}{5}$

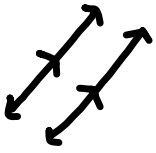
$\frac{\cancel{3}^{1}}{\cancel{10}_{2}} \times \frac{1}{\cancel{9}_{3}} = \frac{15}{90} = \frac{1}{6}$

$\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$ $\parallel$ means $\overleftrightarrow{AB}$ is parallel to $\overleftrightarrow{CD}$

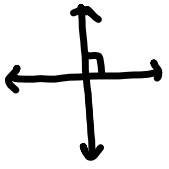
$\overleftrightarrow{AB} \perp \overleftrightarrow{CD}$ $\perp$ means $\overleftrightarrow{AB}$ is perpendicular $\overleftrightarrow{CD}$ (Meet at Right Angles)

Draw a picture to represent each expression:

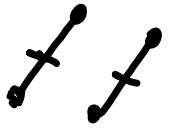
$\overleftrightarrow{JK} \parallel \overleftrightarrow{LM}$

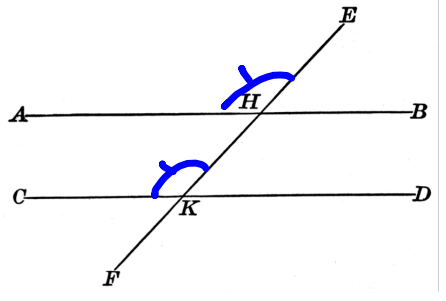
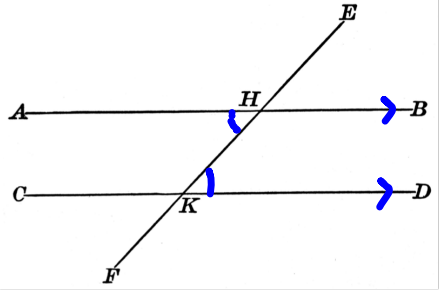


$\overleftrightarrow{RS} \perp \overleftrightarrow{TU}$

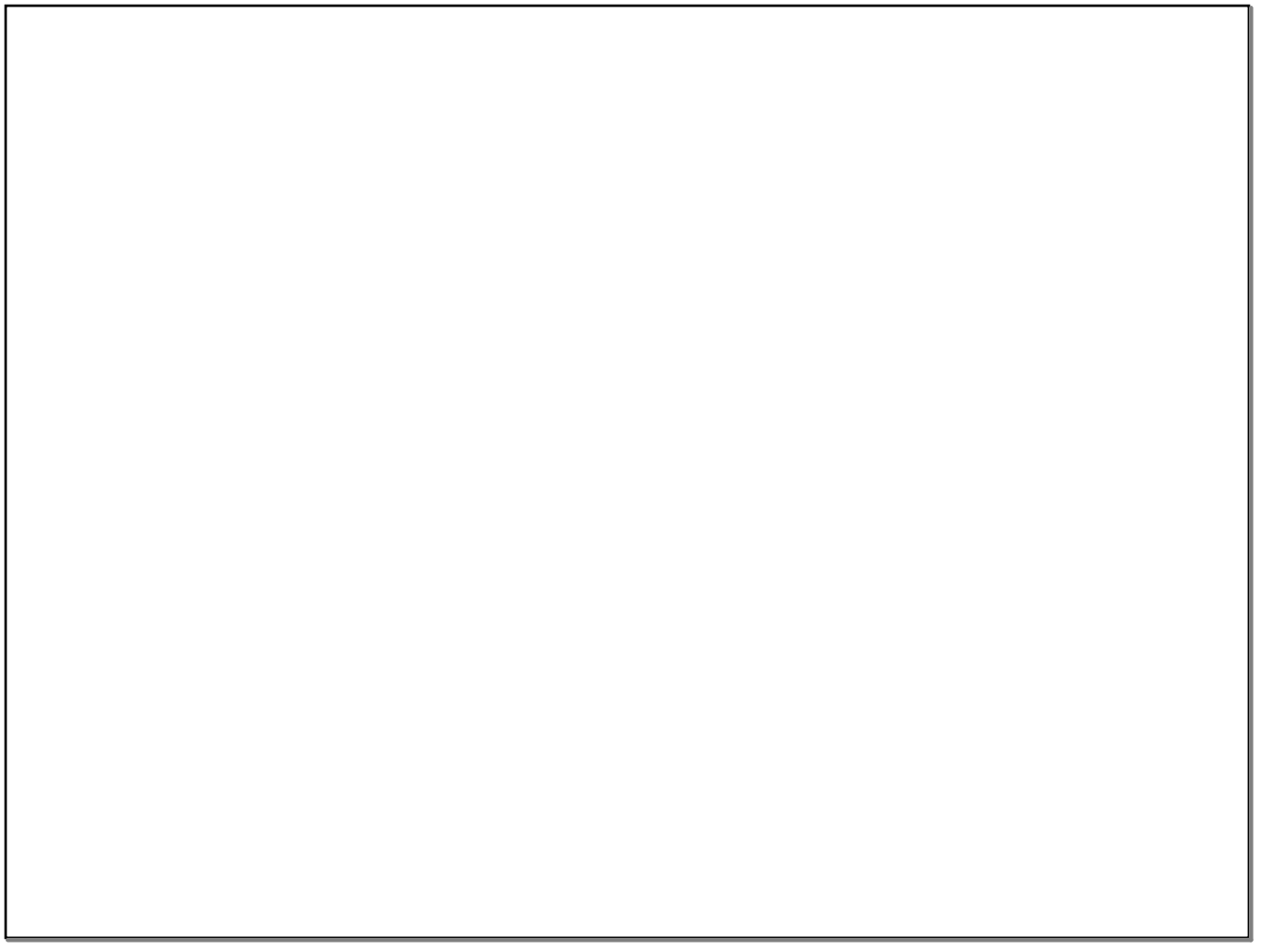


$\overline{EF} \cong \overline{GH}$

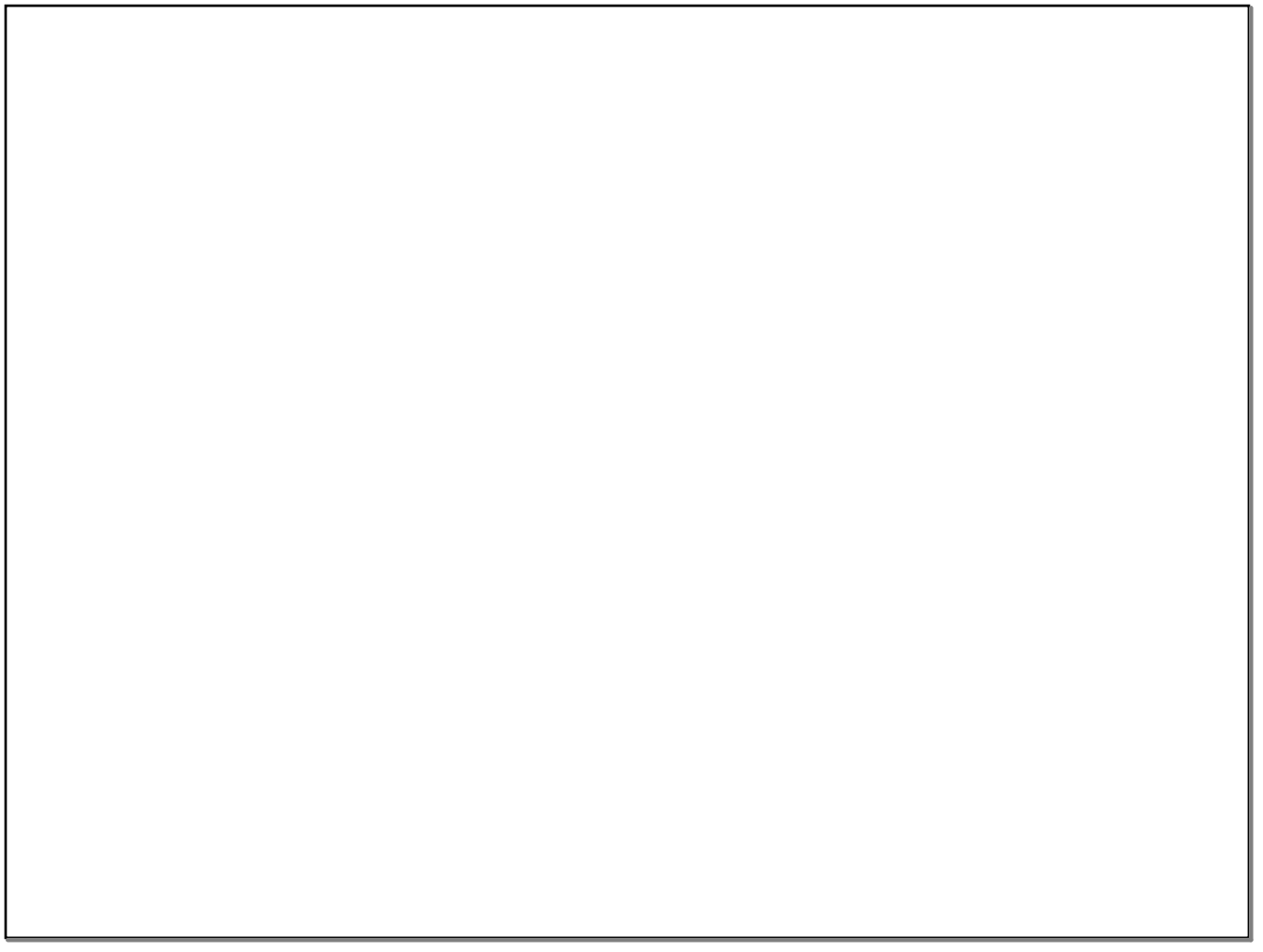


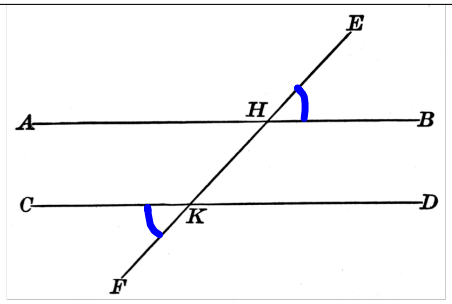
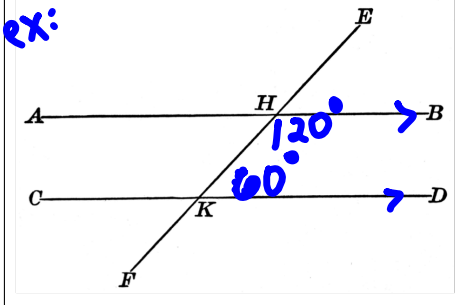
Proving Lines Parallel	**Example:**
If corresponding angles are Congruent the lines are parallel.	
If alternate interior angles are Congruent the lines are parallel.	

October 25, 2022



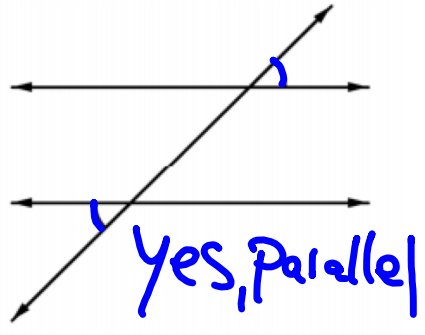
October 25, 2022



If alternate exterior angles are Congruent the lines are parallel.	
If same side interior angles are Supplementary the lines are parallel.	ex: 

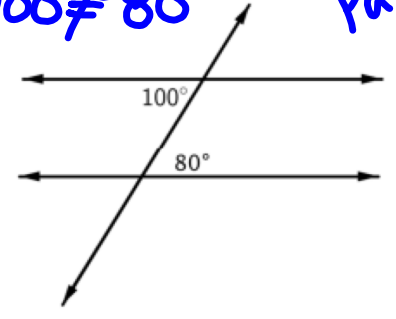
In each example, determine if the lines are parallel or not. Explain why.

1. Alt. Ext.



Yes, Parallel

2. Alt. Int. $100 \neq 80$ Not Parallel ∴



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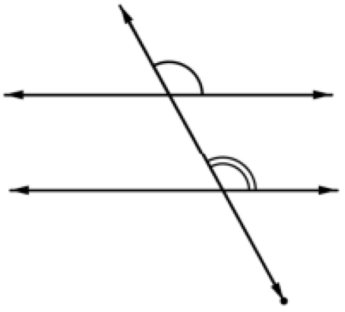

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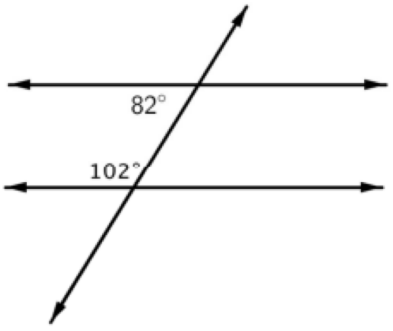
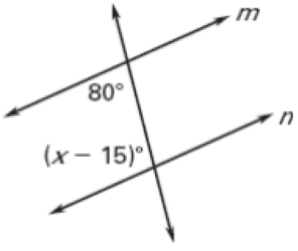
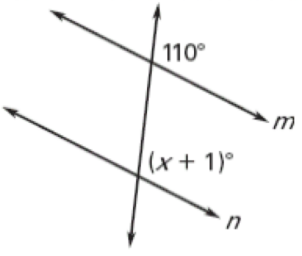


15. Find the value of x that makes $m \parallel n$.

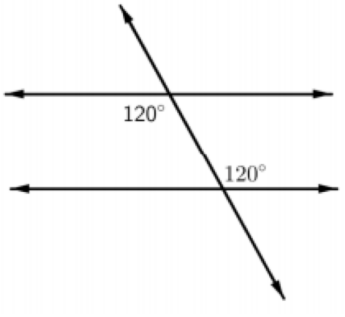


16. Find the value of x that makes $m \parallel n$.



On your own:
Determine if the lines are parallel or not. Explain why.

5.



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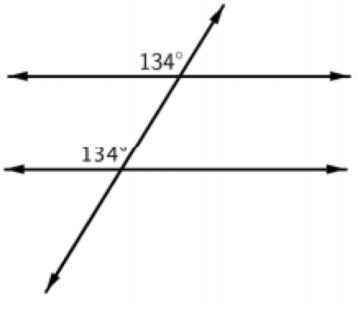
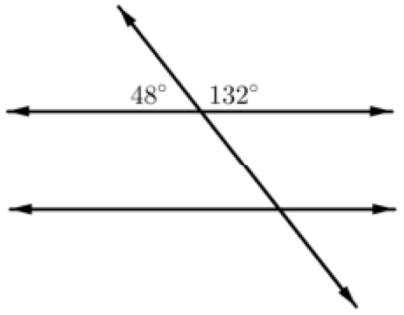


7.



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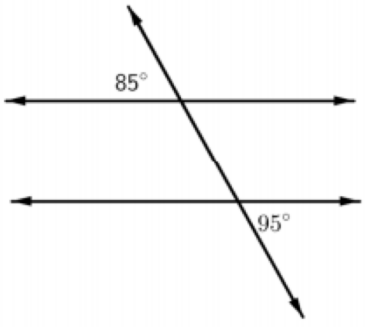

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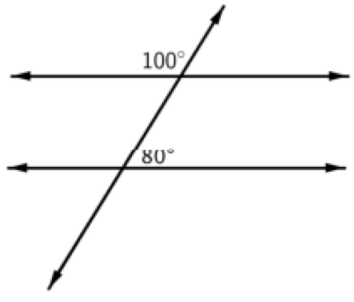

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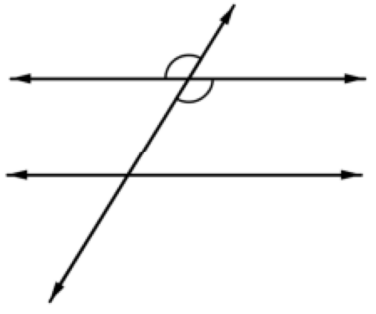

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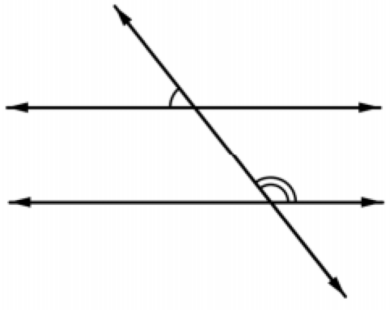

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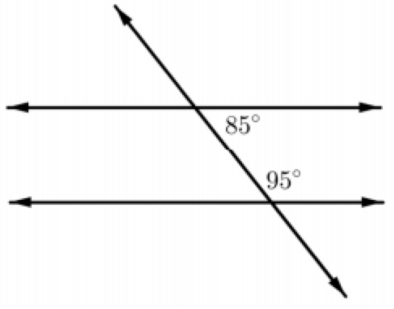
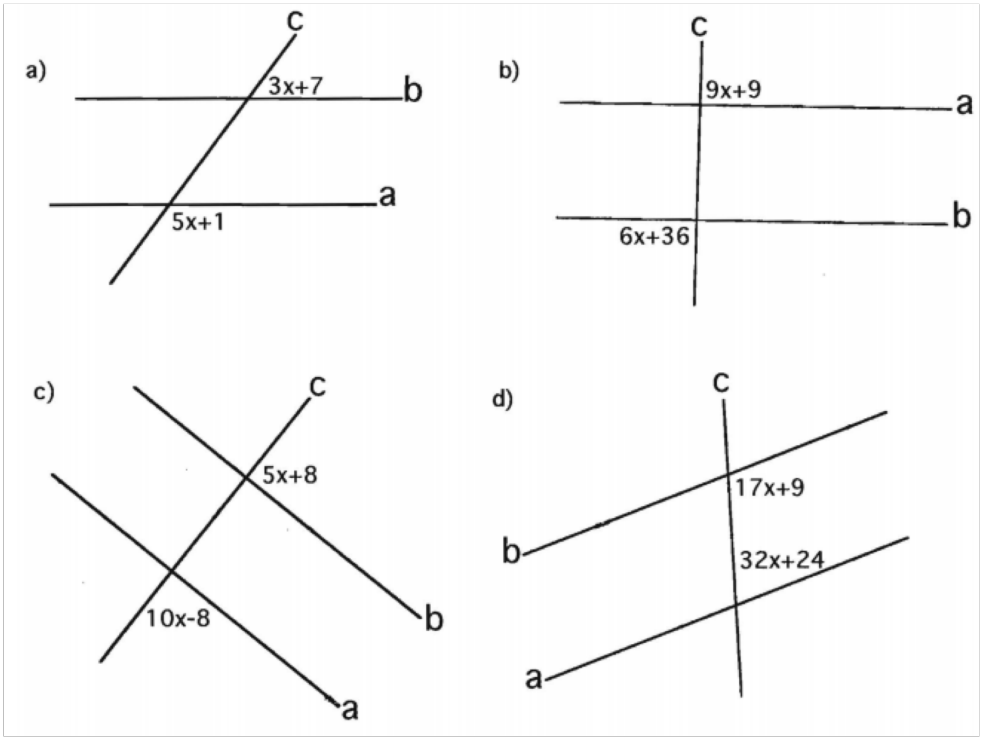


Find x so that $a \parallel b$.



Dividing Fractions Practice:

1. $12 \div \frac{2}{3}$
2. $\frac{3}{4} \div \frac{9}{8}$
3. $\frac{5}{12} \div \frac{10}{3}$
4. $20 \div \frac{5}{6}$
5. $\frac{3}{5} \div 3$
6. $\frac{18}{5} \div \frac{1}{5}$

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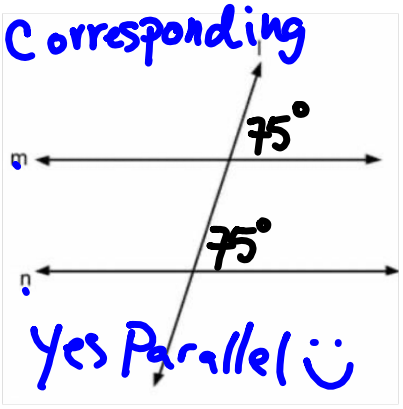
Proving Lines Parallel with Algebra

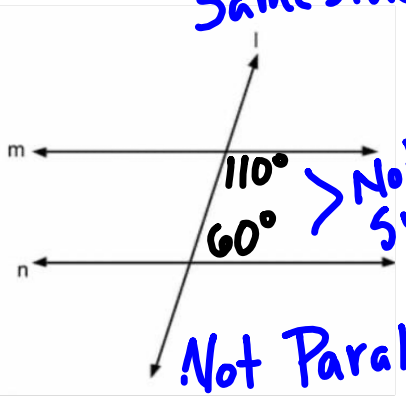
Date:

Warm Up: Determine if the lines are parallel using properties of transversals with parallel lines

a.

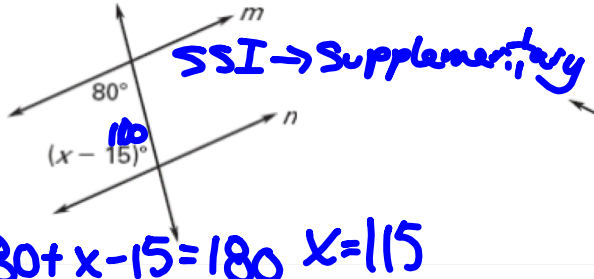


b.



Proving Lines are Parallel with Algebra

15. Find the value of x that makes $m \parallel n$.



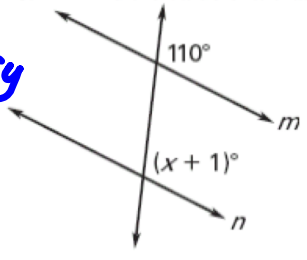
SSI → Supplementary

$80 + x - 15 = 180$ $x = 115$

$65 + x = 180$

$-65 \quad -65$

16. Find the value of x that makes $m \parallel n$.



Corresponding

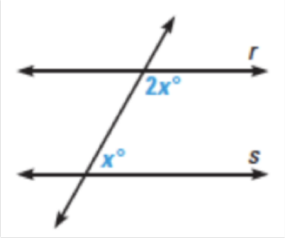
$110 = x + 1$

$-1 \quad -1$

$109 = x$

On your own:

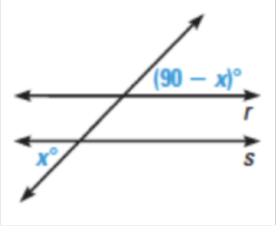
1. Name the angles: same side interior, alternate exterior, alternate interior, corresponding
2. Name the relationship between the angles: Do they add to 180 or are they congruent?
3. Using an equation find the value of x that makes $r \parallel s$.



Angle Pair Name: _____

Relationship: _____

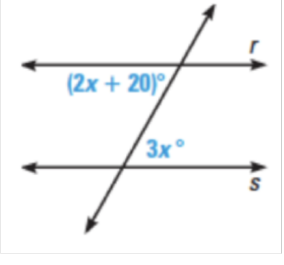
x = _____



Angle Pair Name: _____

Relationship: _____

x = _____

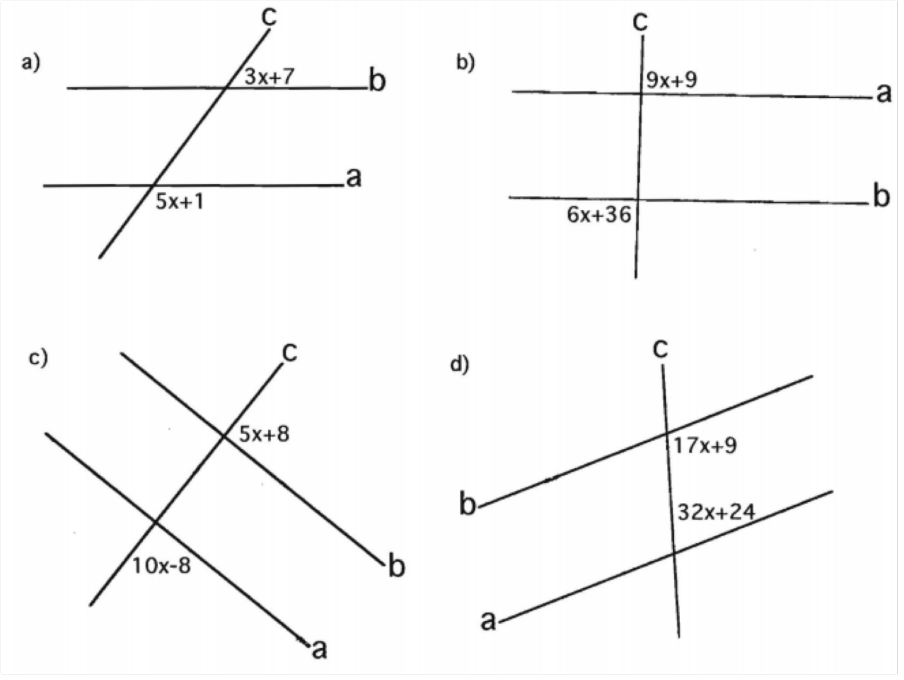


Angle Pair Name: _____

Relationship: _____

x = _____

Find x so that $a \parallel b$.



a.

Angle Pair Name: _____

Relationship: _____

x = _____

b. Angle Pair Name: _____

Relationship: _____

x = _____

c. Angle Pair Name: _____

Relationship: _____

x = _____

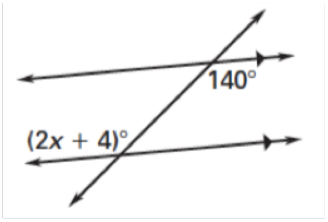
d.

Angle Pair Name: _____

Relationship: _____

x = _____

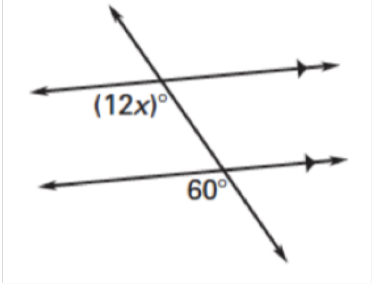
1. Name the angles: same side interior, alternate exterior, alternate interior, corresponding
2. Name the relationship between the angles: Do they add to 180 or are they congruent?
3. Using an equation find the value of x



Angle Pair Name: _____

Relationship: _____

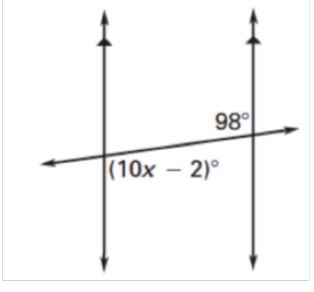
x = _____



Angle Pair Name: _____

Relationship: _____

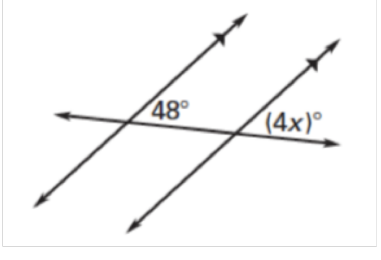
x = _____



Angle Pair Name: _____

Relationship: _____

x = _____



Angle Pair Name: _____

Relationship: _____

x = _____