

Geometry A

3.1 Parallel Lines and Transversals

Name _____

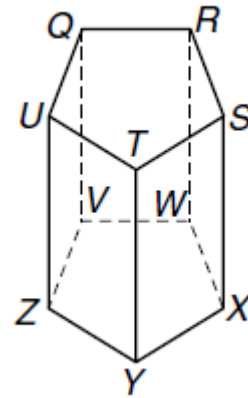
Hour _____ Date _____

ASSIGNMENT

In #1-3, write the geometrical term that matches each definition.

1. Two planes that do not intersect
2. Two coplanar lines that do not intersect
3. A line that intersects two or more lines in a plane

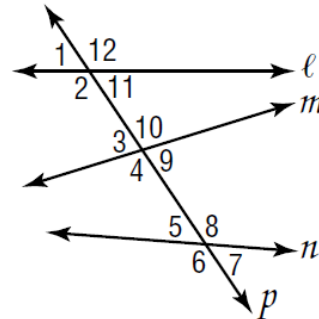
For #4-8 refer to the figure at the right.



4. Name all segments that intersect \overline{QU} .
5. Name all segments that are parallel to \overline{YX} .
6. Name all the planes that intersect plane STX .
7. Name all the planes that are parallel to plane QRT .
8. Which segment is parallel to \overline{QR} ?
A. \overline{QU} B. \overline{VW} C. \overline{RW} D. \overline{SX}

For #9 -16 refer to the figure at the right. Give the name of each special angle pair.

9. $\angle 3$ and $\angle 5$
10. $\angle 6$ and $\angle 12$
11. $\angle 4$ and $\angle 8$
12. $\angle 2$ and $\angle 3$
13. $\angle 8$ and $\angle 12$
14. $\angle 5$ and $\angle 9$
15. $\angle 4$ and $\angle 10$
16. $\angle 6$ and $\angle 7$



Review:

17. Suppose M is the midpoint of AB . What conjecture(s) can you make from this information? (Choose all correct answers).
- A. $AM + AB = MB$
 - B. $AB = 2(AM)$
 - C. $AM = MB$
 - D. $AB = MB$

State the property, definition, theorem, or postulate that justifies each statement.

18. $CD = CD$. _____
19. If $\overline{AB} \cong \overline{BC}$ and $\overline{BC} \cong \overline{CE}$, then $\overline{AB} \cong \overline{CE}$. _____
20. If N is between M and P , then $MN + NP = MP$. _____
21. If $EF + GH = 14$ and $GH = 8$, then $EF + 8 = 14$. _____
22. If $\overline{MN} \cong \overline{PQ}$, then $\overline{PQ} \cong \overline{MN}$. _____
23. If $m\angle 7 + m\angle 8 = 85^\circ$ and $m\angle 8 = 41^\circ$, then $m\angle 7 + 41^\circ = 85^\circ$. _____
24. If R is the midpoint of \overline{QT} , then $\overline{QR} \cong \overline{RT}$. _____

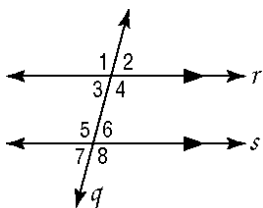
Geometry A
3.2 Angles and Parallel Lines

Name _____
Hour _____ Date _____

ASSIGNMENT

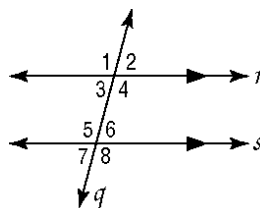
Find x and the measure of each indicated angle.

1. $m\angle 1 = 7x - 28$, $m\angle 8 = 5x + 12$



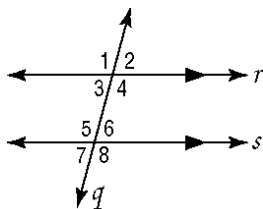
$x = \underline{\hspace{2cm}}$, $m\angle 1 = \underline{\hspace{2cm}}$, $m\angle 3 = \underline{\hspace{2cm}}$

2. $m\angle 3 = 4x + 30$, $m\angle 7 = 3x + 52$



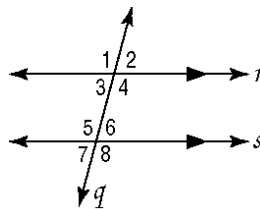
$x = \underline{\hspace{2cm}}$, $m\angle 3 = \underline{\hspace{2cm}}$, $m\angle 5 = \underline{\hspace{2cm}}$

3. $m\angle 4 = 2x + 30$, $m\angle 6 = 3x + 15$



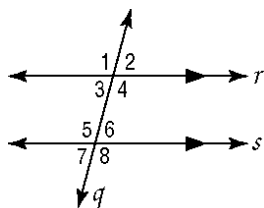
$x = \underline{\hspace{2cm}}$, $m\angle 4 = \underline{\hspace{2cm}}$, $m\angle 2 = \underline{\hspace{2cm}}$

4. $m\angle 5 = 6x + 12$, $m\angle 8 = 7x - 9$



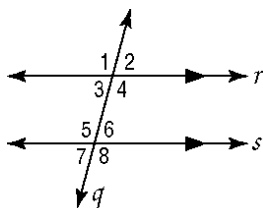
$x = \underline{\hspace{2cm}}$, $m\angle 8 = \underline{\hspace{2cm}}$, $m\angle 4 = \underline{\hspace{2cm}}$

5. $m\angle 2 = 4x - 10$, $m\angle 4 = x + 50$



$x = \underline{\hspace{2cm}}$, $m\angle 2 = \underline{\hspace{2cm}}$, $m\angle 7 = \underline{\hspace{2cm}}$

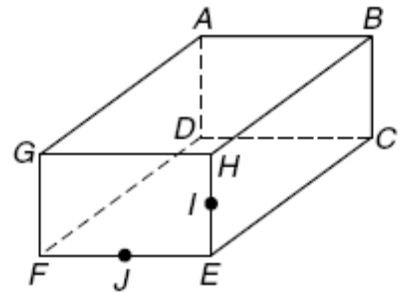
6. $m\angle 4 = 10x - 21$, $m\angle 5 = 7x + 15$



$x = \underline{\hspace{2cm}}$, $m\angle 5 = \underline{\hspace{2cm}}$, $m\angle 3 = \underline{\hspace{2cm}}$

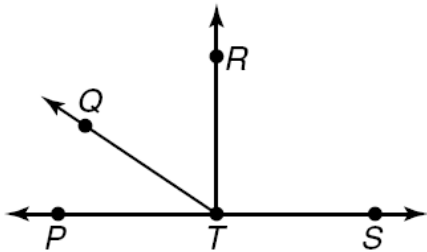
Review:

Refer to the figure at the right.



7. Name 3 collinear points. _____
8. Name a point coplanar with A , G , and F . _____
9. Find the distance between $J(-4, 7)$ and $K(3, -1)$.

10. If $m\angle PTQ = 6x + 18$, and $m\angle QTR = 3x + 27$ find the value of x so that $\overrightarrow{TR} \perp \overrightarrow{TS}$



Geometry A
3.3 Slopes of Lines

Name _____
Hour _____ Date _____

ASSIGNMENT

Determine whether \overline{KM} and \overline{ST} are parallel, perpendicular, or neither. Show work!

1. K(-4, 10), M(2, -8), S(1, 2), T(4, -7)

2. K(-4, 10), M(2, -8), S(1, 1), T(3, 7)

3. K(-4, 10), M(2, -8), S(-2, 2), T(10, 6)

Suppose \overline{AB} has a slope = $\frac{2}{5}$, \overline{CD} has a slope = $\frac{5}{2}$, \overline{EF} has a slope = $-\frac{5}{2}$, \overline{GH} has a slope = $\frac{10}{4}$,
and \overline{JK} has a slope = $-\frac{2}{5}$.

4. Which two lines are parallel?

- A. \overline{AB} and \overline{CD} B. \overline{CD} and \overline{GH} C. \overline{AB} and \overline{EF} D. \overline{AB} and \overline{JK}

5. Which two lines are perpendicular?

- A. \overline{AB} and \overline{CD} B. \overline{CD} and \overline{GH} C. \overline{AB} and \overline{EF} D. \overline{AB} and \overline{JK}

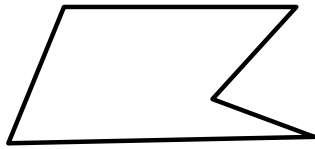
6. Which two lines are neither parallel nor perpendicular?

- A. \overline{AB} and \overline{CD} B. \overline{CD} and \overline{GH} C. \overline{AB} and \overline{EF} D. \overline{AB} and \overline{JK}

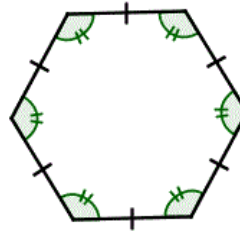
Review:

Name each polygon by its number of sides. Then classify each polygon as *convex* or *concave*, and as *regular* or *irregular*.

7.



8.



9. Find the value of x if S is between R and T , given that $RS = 4x - 5$, $ST = 2x + 17$, $RT = 4x + 20$.

10. Complete the proof.

Given: $3x - 7 = -52$

Prove: $x = -15$

Statements	Reasons
1. $3x - 7 = -52$	1.
2.	2.
3. $3x = -45$	3.
4.	4.
5. $x = -15$	5.

Geometry A
3.4 Parallel Lines

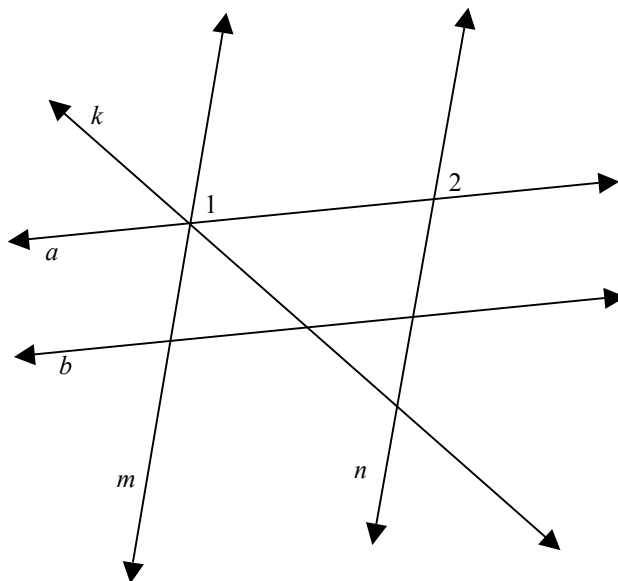
Name _____
 Hour _____ Date _____

ASSIGNMENT

For # 1-6, consider the given information about each figure. Determine which lines, if any, are parallel and justify your answer. HINT: Remember to mark up the figure to help you identify the angle pair!

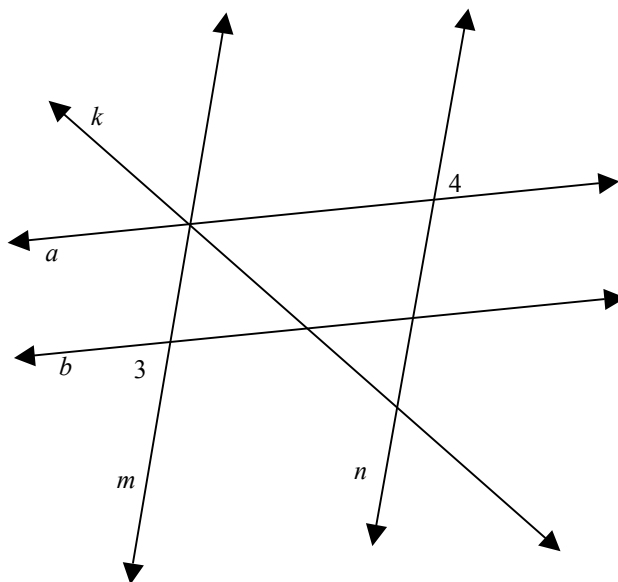
For # 1 and 2, suppose $\angle 1 \cong \angle 2$.

1. Which lines are parallel?
 - A. $a \parallel b$
 - B. $m \parallel n$
 - C. There is not enough information.
2. Select the correct justification.
 - A. $CA \cong \leftrightarrow \parallel$ lines
 - B. $AIA \cong \leftrightarrow \parallel$ lines
 - C. $AEA \cong \leftrightarrow \parallel$ lines
 - D. CIA supplementary $\leftrightarrow \parallel$ lines
 - E. There is not a common transversal



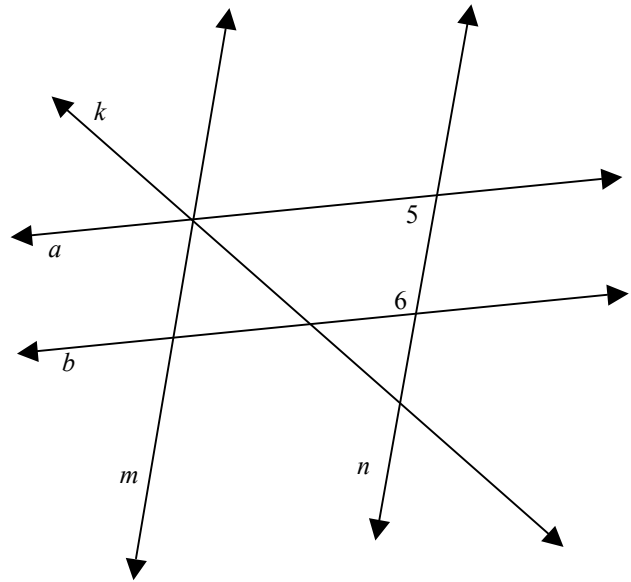
For # 3 and 4, suppose $\angle 3 \cong \angle 4$.

3. Which lines are parallel?
 - A. $a \parallel b$
 - B. $m \parallel n$
 - C. There is not enough information.
4. Select the correct justification.
 - A. $CA \cong \leftrightarrow \parallel$ lines
 - B. $AIA \cong \leftrightarrow \parallel$ lines
 - C. $AEA \cong \leftrightarrow \parallel$ lines
 - E. CIA supplementary $\leftrightarrow \parallel$ lines
 - E. There is not a common transversal



For # 5 and 6, suppose $m\angle 5 + m\angle 6 = 180$.

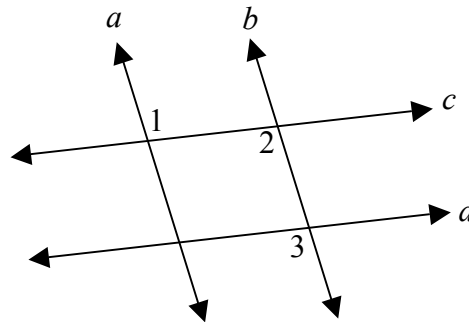
5. Which lines are parallel?
 A. $a \parallel b$
 B. $m \parallel n$
 C. There is not enough information.
6. Select the correct justification.
 A. $CA \cong \leftrightarrow \parallel$ lines
 B. $AIA \cong \leftrightarrow \parallel$ lines
 C. $AEA \cong \leftrightarrow \parallel$ lines
 F. CIA supplementary $\leftrightarrow \parallel$ lines
 E. There is not a common transversal



7. Complete the following proof.

Given: $\angle 1 \cong \angle 3$
 $a \parallel b$

Prove: $c \parallel d$



Statements	Reasons
1. $\angle 1 \cong \angle 3$	1.
2. $a \parallel b$	2.
3.	3. $AIA \cong \leftrightarrow \parallel$ lines
4.	4. Substitution Property
5. $c \parallel d$	5.

Review:

8. Which one of the following pairs of slopes are slopes corresponding to parallel lines?

- A. $\frac{5}{3}$ and $\frac{6}{10}$ B. $\frac{3}{5}$ and $\frac{9}{15}$ C. $-\frac{10}{6}$ and $\frac{3}{5}$ D. $\frac{6}{10}$ and $-\frac{9}{15}$

9. Which one of the following pairs of slopes are slopes corresponding to perpendicular lines?

- A. $\frac{5}{3}$ and $\frac{6}{10}$ B. $\frac{3}{5}$ and $\frac{9}{15}$ C. $-\frac{10}{6}$ and $\frac{3}{5}$ D. $\frac{6}{10}$ and $-\frac{9}{15}$

10. Which one of the following pairs of slopes are slopes corresponding to lines that are neither parallel nor perpendicular?

- A. $\frac{4}{9}$ and $\frac{9}{4}$ B. $\frac{3}{2}$ and $\frac{15}{10}$ C. $-\frac{8}{5}$ and $\frac{15}{24}$ D. $-\frac{2}{7}$ and $-\frac{4}{14}$

11. Segment AB has endpoints $A(-2, 3)$ and $B(5, 0)$.

- a. Find the midpoint.
- b. In what quadrant does the midpoint lie?

12. Suppose $\angle 1$ and $\angle 2$ are vertical angles. If $m\angle 1 = 9b + 3$ and $m\angle 2 = 5b + 31$, find $m\angle 2$.