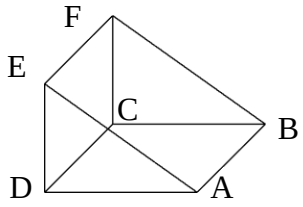
Name _____Date_____Period _____

Geometry Chapter 3 Review: PS 3 – Parallel and Perpendicular Lines

Each question gives a diagram showing several planes, segments, or lines. Use the diagram to state whether the given pieces are: *parallel*, *perpendicular*, *skew*, *intersecting* (not perpendicular), or *neither* of these.

1. The diagram shown is a right triangular prism



a) $\overline{FC}$ and $\overline{FB}$ appear to be _____

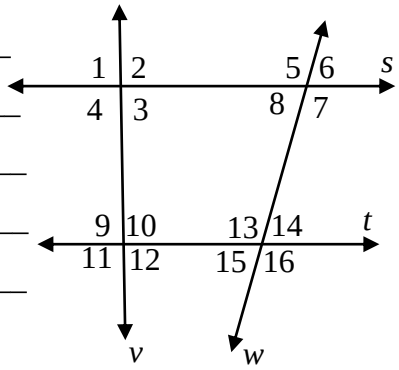
b) $\overline{DC}$ and $\overline{BA}$ appear to be _____

c) $\overline{DC}$ and $\overline{FB}$ appear to be _____

d) plane DEF and plane ABC appear to be _____

e) Name a segment that is skew with $\overline{ED}$ _____

2. Refer to the figure on the right to identify the special angle pair relationships. If the pair of angles are formed based on a transversal, then identify the transversal that applies – or write N/A



a) ∠2 & ∠5 are _____with transversal ____

b) ∠3 & ∠12 are _____ with transversal ____

c) ∠12 & ∠11 are_____ with transversal ____

d) ∠5 & ∠16 are_____ with transversal ____

e) ∠13 & ∠12 are_____ with transversal ____

f) are ∠2 & ∠5 congruent or supplementary? _____

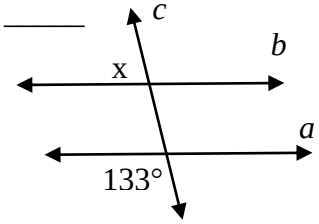
g) are ∠5 & ∠16 congruent or supplementary? _____

Use the diagrams given to answer each of the follow-up questions. Show all equations used!

3.

a) Which line is the transversal? _____

b) If $b \parallel a$, then x = _____

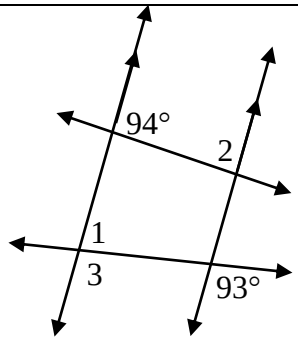


4.

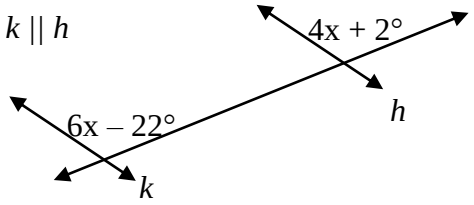
a) m∠1 = _____

b) m∠2 = _____

c) m∠3 = _____



5. $k \parallel h$



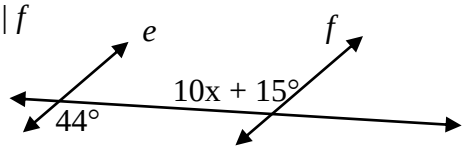
Theorem/Postulate displayed _____

Relationship from theorem _____

Equation:

$x =$ _____

6. $e \parallel f$



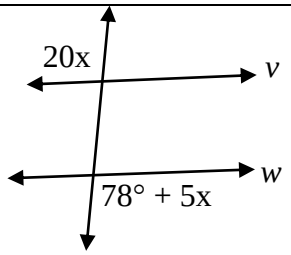
Theorem/Postulate displayed _____

Relationship from theorem _____

Equation:

$x =$ _____

7. Show $v \parallel w$



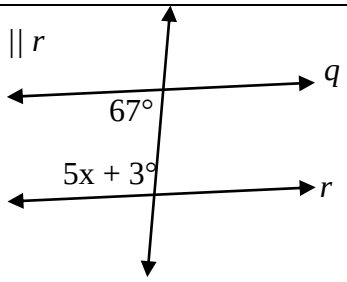
Theorem/Postulate _____

Relationship _____

Equation:

$x =$ _____

8. Show $q \parallel r$



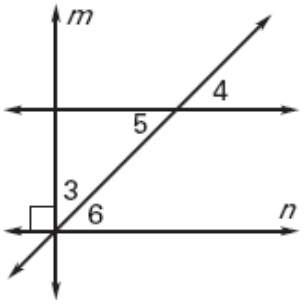
Theorem/Postulate _____

Relationship _____

Equation:

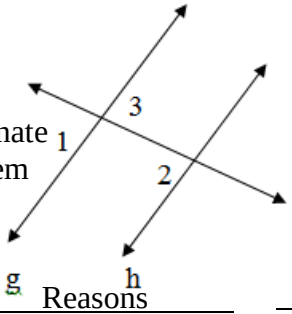
$x =$ _____

9. Given: $m \perp n$,
$\angle 3$ and $\angle 6$ are complementary
$\angle 3$ and $\angle 4$ are complementary
Prove: $\angle 5 \cong \angle 6$



Statements	Reasons
1. $m \perp n$	1.
2. $\angle 3$ and $\angle 6$ are complementary	2.
3. $\angle 3$ and $\angle 4$ are complementary	3.
4. $\angle 4 \cong \angle 6$	4.
5. $\angle 4 \cong \angle 5$	5.
6. $\angle 5 \cong \angle 6$	6.

10. Complete the proof of the Alternate Interior Angles Converse Theorem



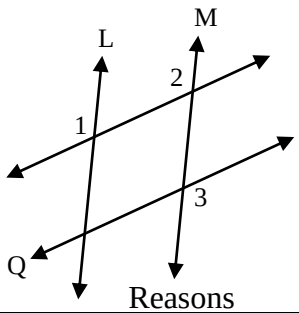
Given: $\angle 2 \cong \angle 3$

Prove: g || h

Statements	Reasons
1.	1.
2. $\angle 3 \cong$	2.
3.	3.
4. g || h	4.

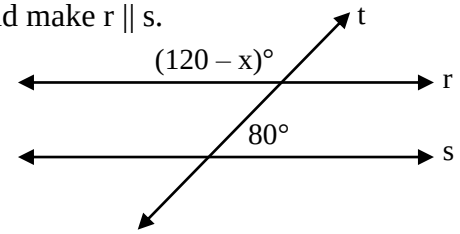
11. Given: P || Q and L || M,

Prove: $\angle 1 \cong \angle 3$



Statements	Reasons
1.	1.
2.	2.
3. $\angle 2 \cong \angle 3$	3.
4.	4. Transitive Property

12. Explain (using postulates/theorems) what value of x would make r || s.



13. Show whether the lines passing through each pair of points are parallel, perpendicular, or neither. (Give slopes)

Line 1: A (0, 2) & D (1, -2)

Line 2: M (6, 5) & S (10, 6)

14. Write the equation of the line parallel to $y=\frac{5}{4}x - 7$, passing through the point (2, -4).

15. Write the equation of the line parallel to $4x + 3y = -21$, passing through (9, 2).

16. Find the distance between the point (-12, 4) and the graph of the equation $3x - 5y = 12$.

17. Find the distance between the point (2, 10) and a line that passes through the points (2, -3) and (11, 3).

Graph each line. Label lines with its question number on the graph

18. $x = -3$

19. $y = -2x + 3$

20. $3x - 2y = 12$