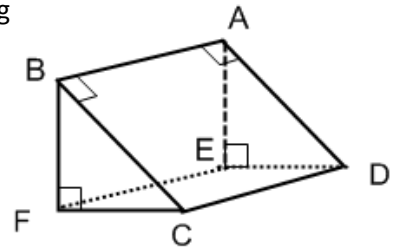
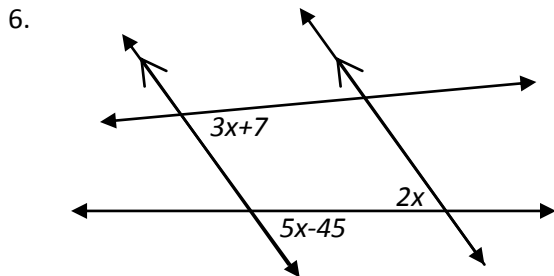
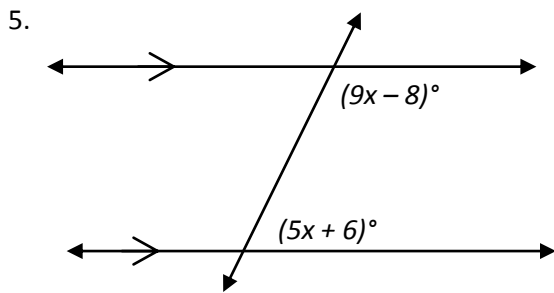


Use the diagram of a triangular prism to the right to identify each of the following

1. A pair of skew segments _____
2. A pair of perpendicular lines _____
3. A pair of parallel lines _____
4. A pair of parallel planes _____

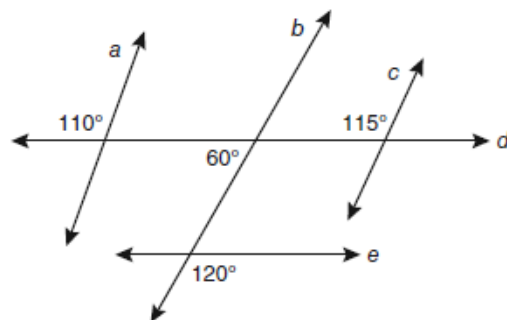


For 5-6, solve for x . Then fill in all the angle measures on the drawing.

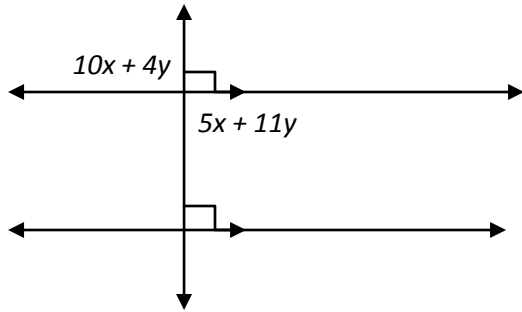


7. Based on the diagram below, which statement is true? Show work that justifies your answer.

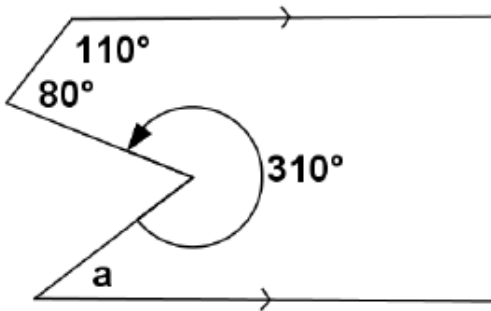
- 1) $a \parallel b$
- 2) $a \parallel c$
- 3) $b \parallel c$
- 4) $d \parallel e$



8. Solve for the missing variables.



9. Find the $m\angle a$. Explain how you arrived at your answer.



For problems 10 -12, use the slopes to determine if the lines are parallel, perpendicular or neither:

10. \overline{EF} and \overline{GH} $E(1,0), F(5,3), G(6,-1)$ and $H(0,2)$

11. \overline{PQ} and \overline{RS} for $P(5,1), Q(-1,-1), R(2,1)$ and $S(3,-2)$

12. \overline{AB} and \overline{XY} for $A(-2,5), B(-3,1), X(0,-2)$ and $Y(1,2)$

For problems 13 and 14, you are given the equation of a line and a point P not on the line.

- Find: a) The equation of the line parallel to the given line through the given point.
b) The equation of the line perpendicular to the given line through the given point.
(Express your answer in either point slope or slope intercept form)

13. Given Equation: $y = 2x + 7$
Through point P(4,-2)

- a) \parallel to line: _____
b) \perp to line: _____

14. Given Equation: $y = -\frac{6}{5}x - 10$
Through point P(15,14)

- a) \parallel to line: _____
b) \perp to line: _____

For 15-17, write the equation of the line in both point-slope and slope-intercept form.

15. The horizontal line through (3,7)

16. The line with slope of $-\frac{8}{5}$ through the point (1,-5)

17. The line through the x-intercept value of -1 and the point (1,2).

18. Write the equation of the vertical line through point (-3,-6). Can you write this in either point-slope or slope-intercept form? Explain

For Problems 19-21, Determine whether the lines are parallel, coincident, intersecting, or perpendicular. Justify your answer.

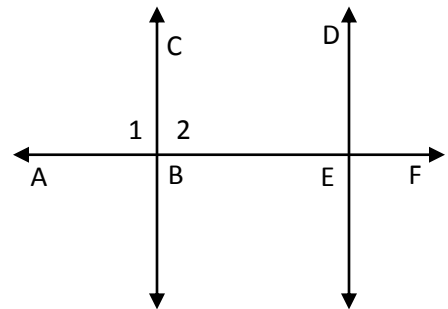
19.
$$\begin{cases} y = 2x + 10 \\ 2y = 4x + 20 \end{cases}$$

20.
$$\begin{cases} y = 7x - 10 \\ y = -7x + 12 \end{cases}$$

21.
$$\begin{cases} y = 2x + 10 \\ 4y + 2x = 20 \end{cases}$$

22. Given: $\angle 1 \cong \angle 2, \overline{DE} \perp \overline{AF}, \overline{ABEF}$

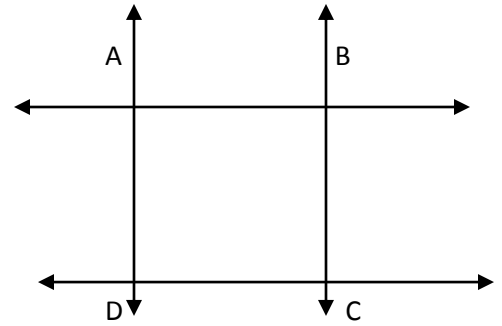
Prove: $\overline{CB} \parallel \overline{DE}$



Statement	Reason
1. $\angle 1 \cong \angle 2$	1.
2. $\angle 1$ and $\angle 2$ are a linear pair	2.
3. $\overline{CB} \perp \overline{AF}$	3.
4. $\overline{DE} \perp \overline{AF}$	4.
5. $\overline{CB} \parallel \overline{DE}$	5.

23. Given: $\overrightarrow{AD} \parallel \overrightarrow{BC}, \overrightarrow{AD} \perp \overrightarrow{AB}, \overrightarrow{BC} \perp \overrightarrow{DC}$

Prove: $\overrightarrow{AB} \parallel \overrightarrow{DC}$



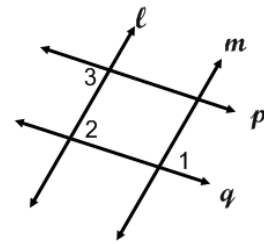
Statement

Reason

1.	$\overrightarrow{AD} \parallel \overrightarrow{BC}, \overrightarrow{BC} \perp \overrightarrow{DC}$	1.
2.	$\overrightarrow{AD} \perp \overrightarrow{DC}$	2.
3.	$\overrightarrow{AD} \perp \overrightarrow{AB}$	3.
4.	$\overrightarrow{AB} \parallel \overrightarrow{DC}$	4.

24. Given: $l \parallel m, \angle 1 \cong \angle 3$

Prove: $q \parallel p$

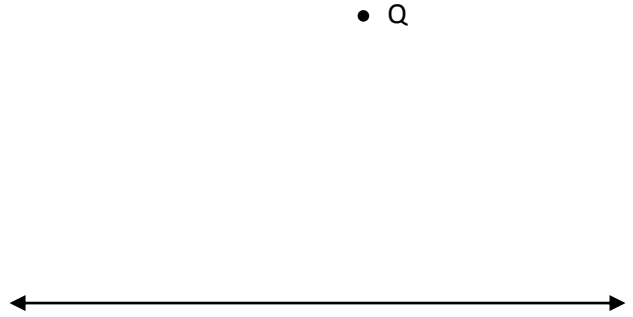


STATEMENTS	REASONS

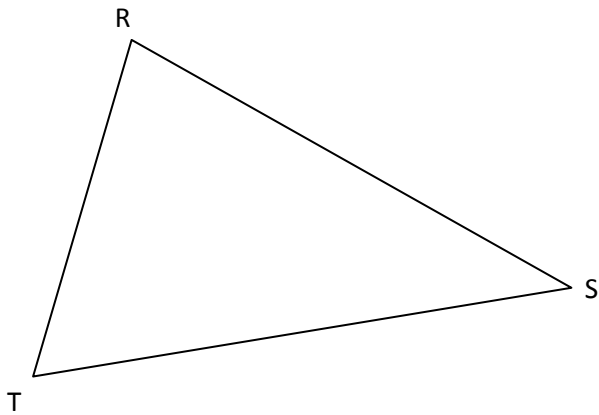
25. Construct a line **perpendicular** to line l through point T.



27. Construct a line through Q **parallel** to the given line (your choice of construction technique).



26. Construct the altitude and median of the triangle that include vertex R.



28. Perform the following transformations of the line through A(2,5) and B(-4,-3) and write the equation for each resulting image.

- A. $r_{y-axis}(\overline{AB})$ $\overline{A'B'}$: _____
- B. $T_{4,-2}(\overline{AB})$ $\overline{A'B'}$: _____

