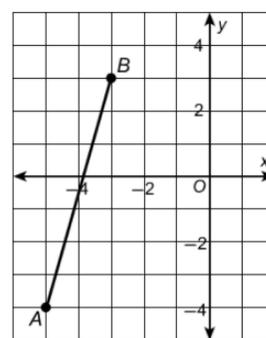## Review Section:

1. Find a counterexample to show that this statement is not true. If two angles are congruent, then they are vertical.

2. If point (p, q) is $\frac{3}{4}$ of the way from A to B, what are the values of q and q?

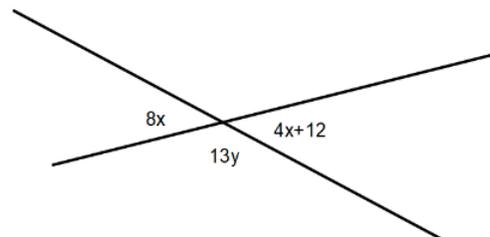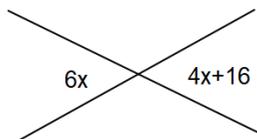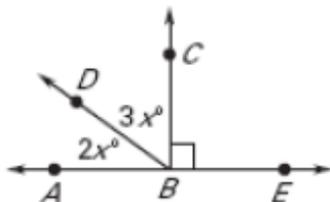3. Consider the statement: If James has at least two $10 bills, then he has at least $20.

    a. Is this a true statement? Justify your reasoning.

    b. Write the converse of this statement. Is this a true statement? Expalin.
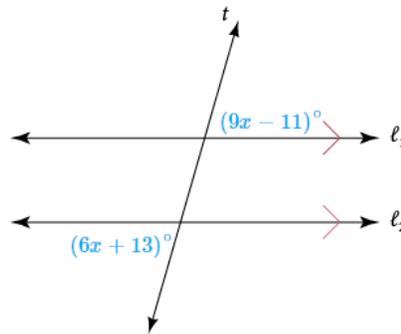
4. Find the value of the variable.

Section: Properties of Parallel Lines

Use the figure to answer each question in this section.

5. If $c \parallel d, a \parallel b,$ and $m\angle 17 = 45°,$ then $m\angle 6 = $ _____

6. If $\angle 15 \cong \angle 8$ then which two lines are parallel? Explain your answer.

7. Find the value of x.

$(9x - 11)°$ ℓ_1
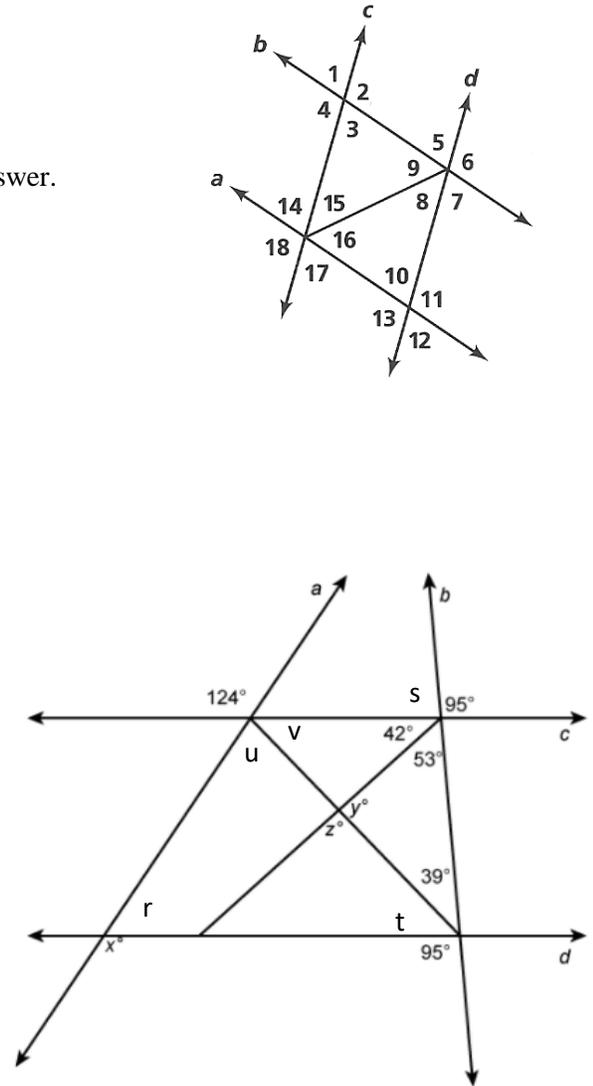
$(6x + 13)°$ ℓ_2

8. Use the figure to the right. Lines *a, b, c,* and *d* intersect as shown.

a. Which pair of lines are parallel?
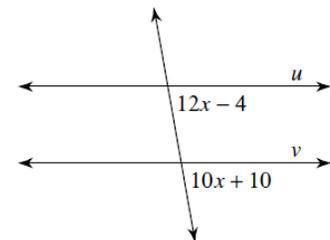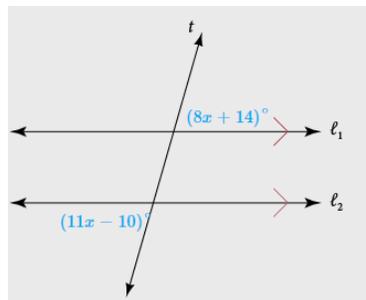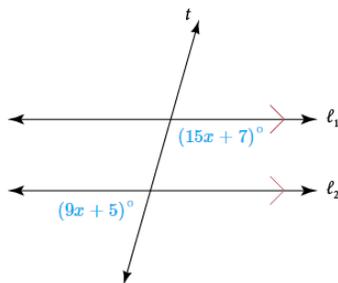
b. Find the value of the variables.

r = _____   S = _____   t = _____   u= _____

v = _____   x = _____   y = _____   z = _____

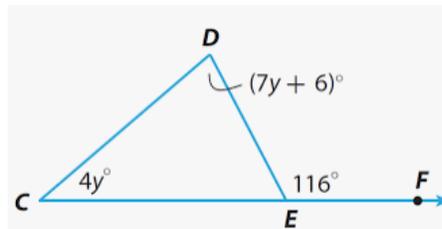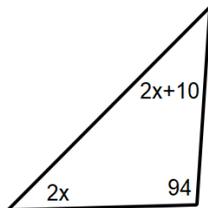9. Find the value of the variable that will make the lines parallel.

$(15x + 7)°$ ℓ_1

$(9x + 5)°$ ℓ_2

$(8x + 14)°$ ℓ_1

$(11x - 10)°$ ℓ_2
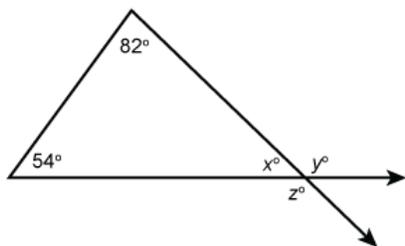
$12x - 4$ u

$10x + 10$ v

Section: Triangle Sum and Exterior Angle Theorem

10. Find the values of the variable.

11. Given the figure, find the values of the variables.

Section: Slopes of Parallel and Perpendicular Lines

12. Are the lines parallel, perpendicular, or neither?

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

$$3x + 2y = 6$$

13. Write an equation for a line (in slope-intercept form) parallel to $y = -5x - 3$ and passing through the point (2, -12)
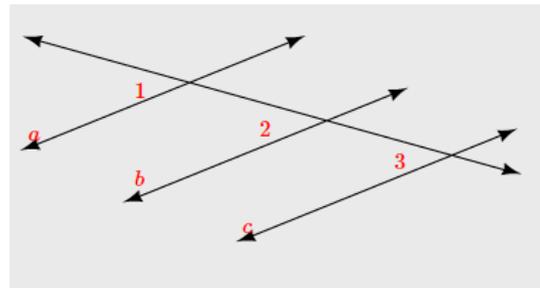
14. Write an equation for a line (in slope intercept form) perpendicular to the line $y = -2x + 4$ and passes through the point (-4, -1)

15. Given the following figure, find which lines will be parallel and/or perpendicular. Verify by using slopes.
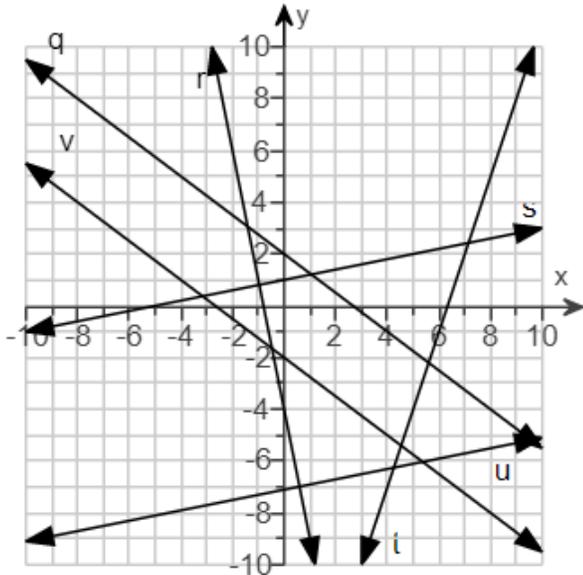
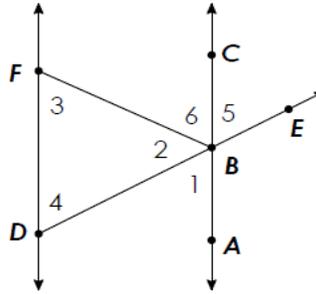## Section Proofs

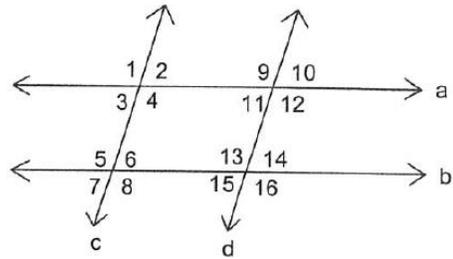16. Given $a \parallel b, b \parallel c$
    Prove $a \parallel c$

Statement	Reason
1.	1.
2. $\angle 1 \cong \angle 2 \; and \; \angle 2 \cong \angle 3$	2.
3.	3. Substitution Property
4.	4.

17. Given: $\overline{FD} \parallel \overline{CA}$

$\angle 3 \cong \angle 4$

Prove: $\angle 5 \cong \angle 6$

Statement	Reason
1.	1.
2. $\angle 1 \cong \angle 4$	2.
3.	3. Vertical Angles are Congruent
4. $\angle 3 \cong \angle 6$	4.
5. $\angle 3 \cong \angle 1$	5.
6. $\angle 3 \cong \angle 5$	6.
7. $\angle 5 \cong \angle 6$	7.

18. Given: $a \parallel b$

Prove: $\angle 9 \text{ and } \angle 14 \text{ are supplementary}$

Statement	Reason
1.	1.
2. $m\angle 9 + m\angle 11 = 180$	2.
3. $\angle 11 \cong \angle 14$	3.
4.	4. Definition of Congruent Angles
5.	5. Substitution Property
6.	6.