

$$\begin{array}{r} \textcircled{5} \quad 4x + 6y = 86 \\ \quad (-1)5x + (-1)6y = 94(-1) \\ \hline \end{array}$$
$$-x = -8$$
$$\boxed{x = 8}$$

To Get y...

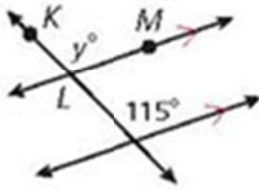
$$\begin{aligned} 4(8) + 6y &= 86 \\ 6y &= 54 \\ y &= 9 \end{aligned}$$

$$\begin{matrix} x=8 \\ y=9 \end{matrix}$$

6. $m\angle KLM$

$$y = 115^\circ$$

Corresp.
to
are \approx



7. $m\angle VYX$

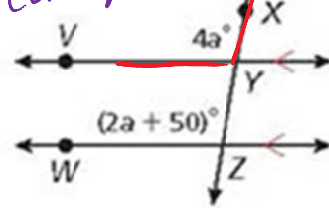
$$2a + 50 = 4a$$

$$50 = 2a$$

$a = 25$

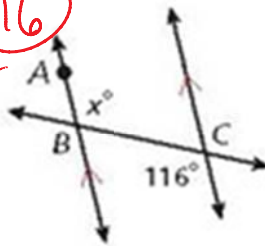
$$m\angle VYX = 4a = 4(25) = \boxed{100^\circ}$$

Corresp. \mathbb{A}_d are \cong .



8. $m\angle ABC = 116^\circ$

Alt. Interior
 \angle s are \cong .



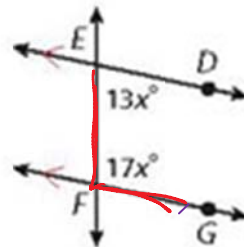
9. $m\angle EFG$

Same-side
interior \angle s
are supp.

$$13x + 17x = 180$$

$$30x = 180$$

$x = 6$


$$x = 6$$
$$mLEFG = 17x \Rightarrow 17(6) = 102^\circ$$

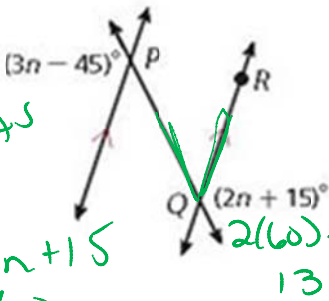
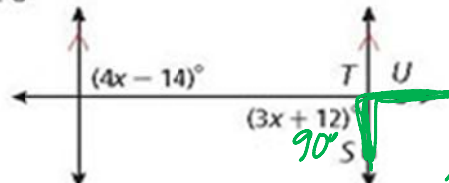
10. $m\angle PQR$

Alt.
Exterior \angle s
are \cong

$$3n - 45 = 2n + 15$$

$$n = 60$$

$$n = 60$$
$$m \angle PQR = 180^\circ - 135^\circ = \boxed{45^\circ}$$

11. $m\angle STU$ 

Alt. Int. Δ s are \cong

$$4x - 14 = 3x + 12$$

$$x = 2.6$$

$$x = 26$$

$$m\angle STU = 180^\circ - 90^\circ = 90^\circ$$

12. **Parking** In the parking lot shown, the lines that mark the width of each space are parallel.

$$m\angle 1 = (2x - 3y)^\circ = 60^\circ$$

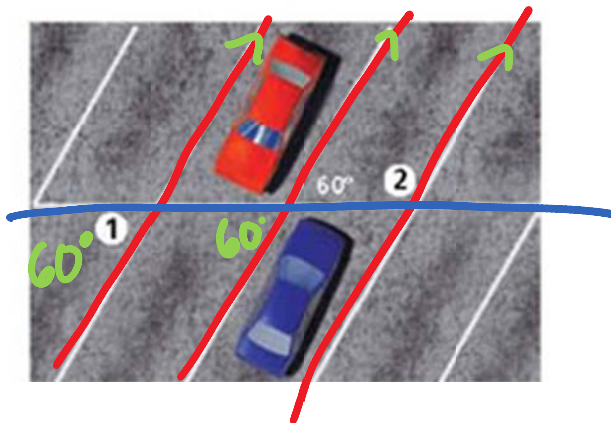
$$m\angle 2 = (x + 3y)^\circ = 120^\circ$$

Find x and y .

$$\begin{array}{r} 2x - 3y = 60 \\ \oplus \quad x + 3y = 120 \\ \hline 3x = 180 \\ \boxed{x = 60} \end{array}$$

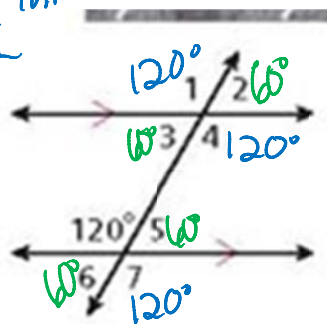
To get y :

$$\begin{array}{r} x + 3y = 120 \\ 60 + 3y = 120 \\ 3y = 60 \\ \boxed{y = 20} \end{array}$$



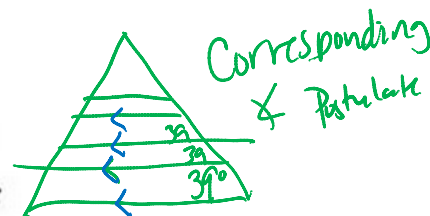
Find each angle measure. Justify each answer with a postulate or theorem.

same-side int. \angle s



13. $m\angle 1$ 120° *Corr. Δ Post.*
 14. $m\angle 2$ 60° *Linear Pair Thm.*
 15. $m\angle 3$ 60° *Linear Pair Thm.*
 16. $m\angle 4$ 120° *Alt. Int. Δ Thm.*
 17. $m\angle 5$ 60° *Linear Pair Thm.*
 18. $m\angle 6$ 60° *Linear Pair Thm.*
 19. $m\angle 7$ 120° *Vert. Δ Thm.*

24. **Architecture** The Luxor Hotel in Las Vegas, Nevada, is a 30-story pyramid. The hotel uses an elevator called an inclinator to take people up the side of the pyramid. The inclinator travels at a 39° angle. Which theorem or postulate best illustrates the angles formed by the path of the inclinator and each parallel floor? (Hint: Draw a picture.)



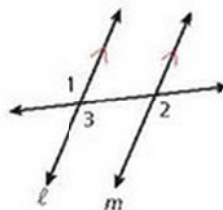
Corresponding Δ Postulate

25. Complete the two-column proof of the Alternate Exterior Angles Theorem.

Given: $\ell \parallel m$

Prove: $\angle 1 \cong \angle 2$

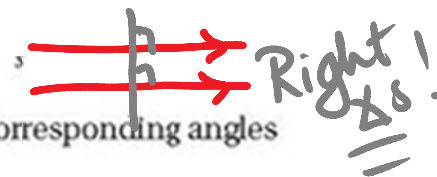
Proof:



Statements	Reasons
1. $\ell \parallel m$	1. Given
2. a. $\angle 1 \cong \angle 3$	2. Vert. Δ Thm.
3. $\angle 3 \cong \angle 2$	3. b. \angle ?
4. c. $\angle 1 \cong \angle 2$	4. d. \angle ?

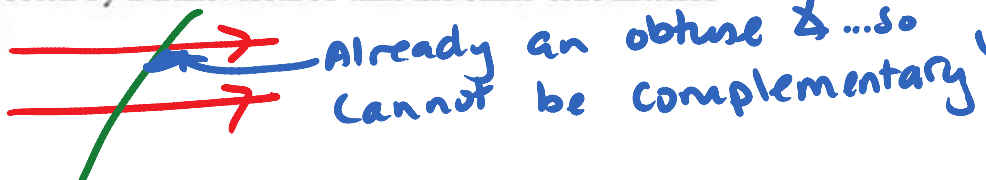
Corresponding Δ Postulate
Transitive Prop. of \cong

Draw the given situation or tell why it is impossible.



27. Two parallel lines are intersected by a transversal so that the corresponding angles are supplementary.

28. Two parallel lines are intersected by a transversal so that the same-side interior angles are complementary.



30. **Land Development** A piece of property lies between two parallel streets as shown. $m\angle 1 = (2x + 6)^\circ$, and $m\angle 2 = (3x + 9)^\circ$. What is the relationship between the angles? What are their measures?



Same-Side Interior Δ s are Supp.

$$\begin{aligned} 2x + 6 + 3x + 9 &= 180 \\ 5x + 15 &= 180 \\ 5x &= 165 \\ x &= 33 \end{aligned}$$

$$\begin{aligned} m\angle 1 &= 2(33) + 6 = 72^\circ \\ m\angle 2 &= 3(33) + 9 = 108^\circ \end{aligned}$$

34. $m\angle RST = (x + 50)^\circ$, and $m\angle STU = (3x + 20)^\circ$. Find $m\angle RVT$.

(A) 15°

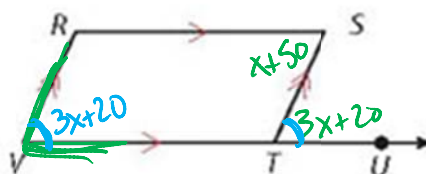
(B) 27.5°



(C) 65°

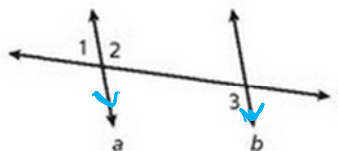
(D) 77.5°

$$\begin{aligned} x + 50 &= 3x + 20 \\ 30 &= 2x \\ 15 &= x \end{aligned}$$



because of So... $m\angle RVT = 3(15) + 20 = 45 + 20 = 65^\circ$

36. **Short Response** Given $a \parallel b$ with transversal t , explain why $\angle 1$ and $\angle 3$ are supplementary.



$\angle 1$ and $\angle 2$ are a linear pair and therefore, supplementary. $\angle 2$ and $\angle 3$ are congruent because of the alternate interior angles theorem. By substitution, $\angle 1$ and $\angle 3$ are supplementary.