

Homework 6.1: Parallel Lines and Transversals

Name: _____

Directions: Name each of the following types of angles. Then, state whether they are congruent or supplementary.

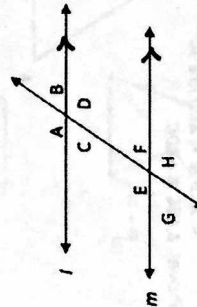
1)	Name: _____	2)	Name: _____
3)	Name: _____	4)	Name: _____

Corresponding
Congruent
or
Supplementary

Alt. ext.
Congruent
or
Supplementary

consecutive int.
Congruent
or
Supplementary

Directions: Find the value of x in each question given that lines l and m are parallel. Check your answers by finding the measure of each angle.



5. $m\angle C = 3x - 10$; $m\angle F = x + 70$
 $3x - 10 = x + 70$
 $2x = 80$
 $x = 40$ ✓
6. $m\angle D = x + 27$; $m\angle F = 2x - 39$
 $x + 27 = 2x - 39$
 $3x = 192$
 $x = 64$ ✓
7. $m\angle B = 2(x + 40)$; $m\angle G = 5x + 44$
 $2(x + 40) = 5x + 44$
 $36 = 3x$
 $x = 12$ ✓

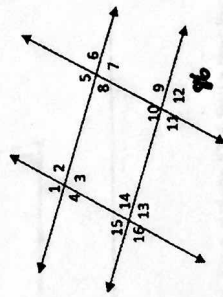
$x = 40$
 $m\angle C = 110^\circ$
 $m\angle F = 110^\circ$

$x = 64$
 $m\angle D = 91^\circ$
 $m\angle F = 91^\circ$

$x = 12$
 $m\angle B = 104^\circ$
 $m\angle G = 104^\circ$

Directions: Solve for the following. Show all work in the space provided.

8. Given that $m\angle 4 = 3x + 10$ and $m\angle 12 = 2x + 30$, find the value of x, $m\angle 4$, $m\angle 10$.

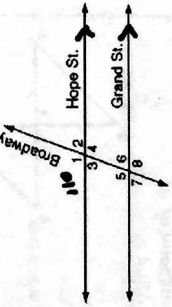
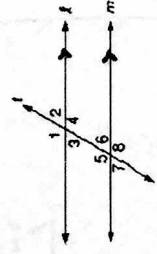


$x = 28$
 $m\angle 4 = 94^\circ$
 $m\angle 10 = 86^\circ$

$3x + 10 + 2x + 30 = 180$
 $5x = 140$
 $x = 28$

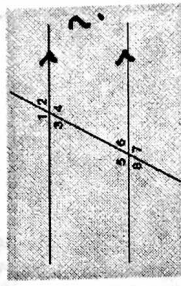
9. In the accompanying diagram, line t is parallel to line m, and line l is a transversal. Which must be a true statement?

- (1) $m\angle 1 + m\angle 4 = 180$ ✓
 (2) $m\angle 1 + m\angle 8 = 180$
 (3) $m\angle 3 + m\angle 6 = 180$
 (4) $m\angle 2 + m\angle 5 = 180$



10. The accompanying diagram shows two parallel roads, Hope Street and Grand Street, crossed by a transversal road, Broadway. If $m\angle 1 = 110$, what is the measure of $m\angle 7$?

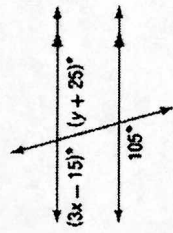
- (1) 40°
 (2) 70° ✓
 (3) 110°
 (4) 180°



11. In the accompanying figure, what is one pair of alternate interior angles?

- (1) $\angle 1$ and $\angle 2$
 (2) $\angle 4$ and $\angle 5$ ✓
 (3) $\angle 4$ and $\angle 6$
 (4) $\angle 6$ and $\angle 8$

12. Find the value of x and y.



$3x - 15 = 105$
 $3x = 120$
 $x = 40$

$y + 25 + 105 = 180$
 $y = 50$