

Using the picture to the right, list the type of angle pair and find the indicated measurement:

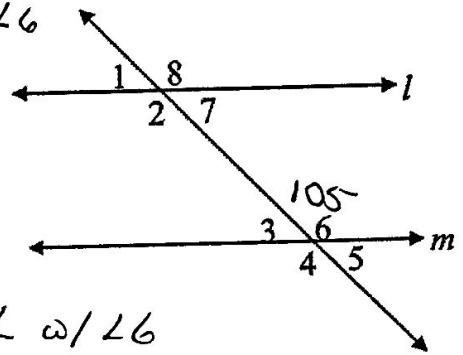
1. If $m\angle 6 = 105^\circ$, $m\angle 3 = \underline{75}$ because Linear pair w/ $\angle 6$

2. If $m\angle 6 = 105^\circ$, $m\angle 8 = \underline{105}$ because Corr. \angle w/ $\angle 6$

3. If $m\angle 6 = 105^\circ$, $m\angle 4 = \underline{105}$ because Vert \angle w/ $\angle 6$

4. If $m\angle 6 = 105^\circ$, $m\angle 7 = \underline{75}$ because Same side int. \angle w/ $\angle 6$

5. If $m\angle 6 = 105^\circ$, $m\angle 2 = \underline{105}$ because alternate int. \angle w/ $\angle 6$

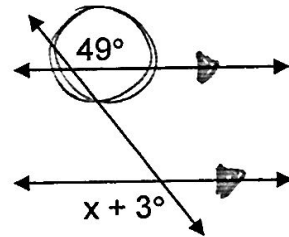


For each of the following, set up and solve an equation and list the justification for the equation you set up.

6. Equation: $x + 3 = 49$

Justification: alt. ext angles \cong when formed by parallel lines

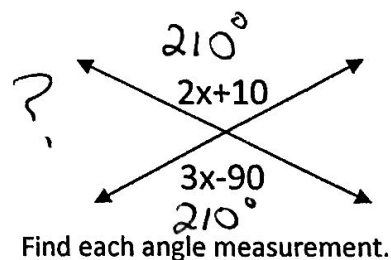
Value of x: $x = 46$



7. Equation: $3x - 90 = 2x + 10$

Justification: Vertical angles \cong

Value of x: $x = 100$



Find each angle measurement.

Does not make sense!

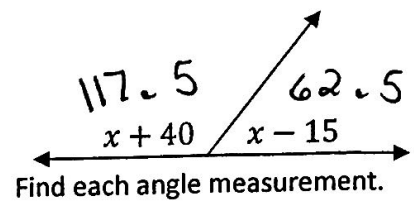
8. Equation: $x + 40 + x - 15 = 180$

Justification: Linear Pair must be 180°

Value of x: $2x + 25 = 180$

$$2x = 155$$

$$x = 77.5$$



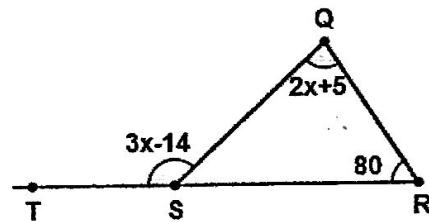
Solve each for the indicated variable and state the theorem or property that allows you to set up your equation.

9. Equation: $80 + 2x + 5 = 3x - 14$

Justification: 2 remote interior angles
add to equal exterior angle.
What's the measure of angle Q? _____

$$85 + 2x = 3x - 14$$

$$99 = x$$



$$m\angle Q = 203^\circ$$

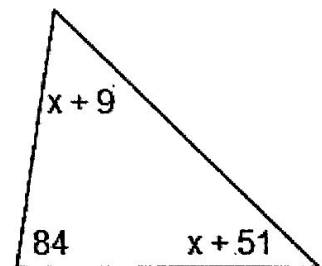
10. Equation: $84 + x + 9 + x + 51 = 180$

Justification: 3 interior angles of a
triangle add to 180.

$$2x + 144 = 180$$

$$2x = 36$$

$$x = 18$$



11. Equation: $5x - 1 = 9x - 27$

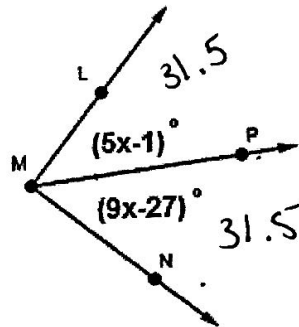
Justification: angle bisector divides angle

What's the measure of $\angle PMN$? 31.5°

$$26 = 4x$$

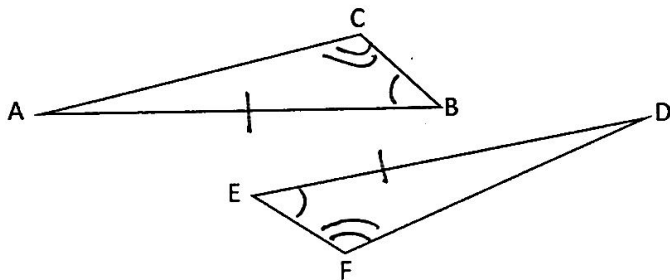
$$6.5 = x$$

\overline{MP} is an angle bisector for $\angle LMN$.

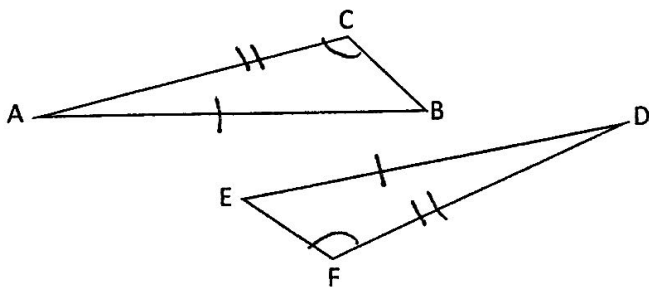


Label each picture with the given information, state if the two triangles are congruent and give the justification.

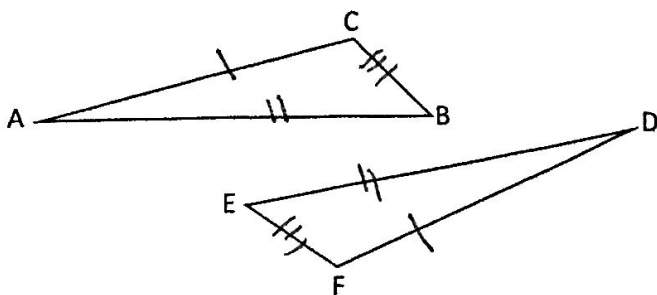
12. Given: $\overline{AB} \cong \overline{DE}$, $\angle B \cong \angle E$, $\angle C \cong \angle F$ yes by AAS



13. Given: $\overline{DE} \cong \overline{AB}$, $\overline{AC} \cong \overline{DF}$, $\angle F \cong \angle C$ No SSA



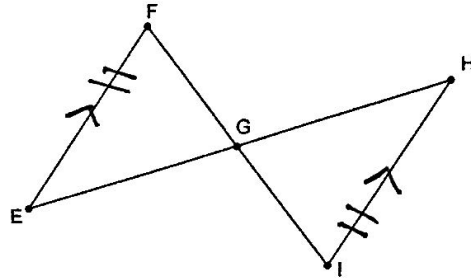
14. Given: $\overline{AC} \cong \overline{DF}$, $\overline{AB} \cong \overline{DE}$, $\overline{BC} \cong \overline{EF}$ yes by SSS



Complete the proof below with the given information.

15. Given: $\overline{EF} \parallel \overline{HI}$
 $\overline{HI} \cong \overline{EF}$

Prove: $\triangle EFG \cong \triangle HIG$

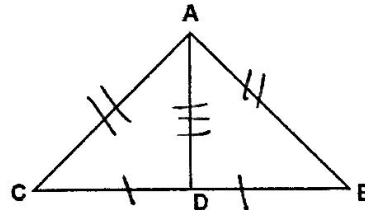


I know \triangle _____ \cong \triangle _____ because ASA or AAS

- I know (Circle One: Sides or Angles) $\overline{HI} \cong \overline{EF}$ are congruent because it was given information
- I know (Circle One: Sides or Angles) _____ \cong _____ are congruent because vertical angles
- I know (Circle One: Sides or Angles) _____ \cong _____ are congruent because alternate interior angles formed by || lines

16. Given: D is the midpoint of \overline{CB}
 $\triangle ABC$ is isosceles

Prove: $\triangle CAD \cong \triangle BAD$



I know \triangle CAD \cong \triangle BAD because SSS

- I know (Circle One: Sides or Angles) $\overline{CD} \cong \overline{DB}$ are congruent because D is midpoint
- I know (Circle One: Sides or Angles) $\overline{AC} \cong \overline{AB}$ are congruent because $\triangle ABC$ is isosceles
- I know (Circle One: Sides or Angles) $\overline{AD} \cong \overline{AD}$ are congruent because reflexive property