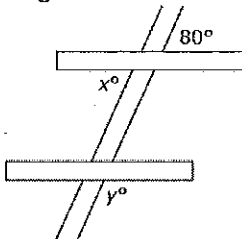


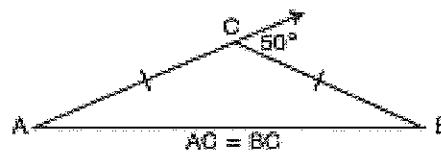
8.G.5 Use informal arguments to establish facts about the angle sum and exterior angles triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.

The figure shows part of a stepladder with two steps. Each step is parallel to the ground and attached to a diagonal rod.



Which conclusion is true based on the given information and angle relationships?

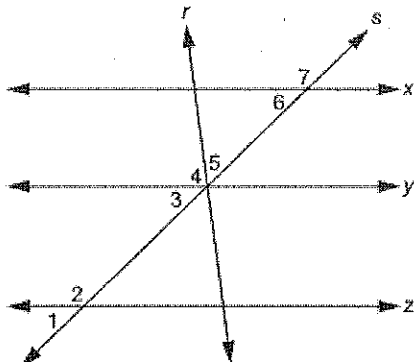
- A) The value of x is 80 because vertical angles are congruent.
- B) The value of x is 80 because adjacent angles are congruent.
- C) The value of y is 100 because vertical angles are supplementary.
- D) The value of y is 100 because alternate exterior angles are supplementary.



In triangle ABC, the measure of angle A is:

- A. 25°
- B. 40°
- C. 45°
- D. 50°

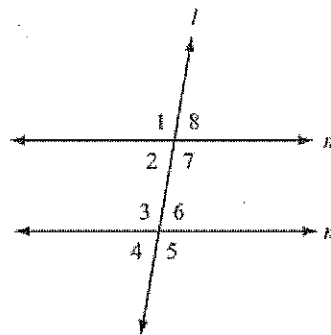
In the diagram below, lines x , y , and z are all parallel, and lines r and s intersect at line y .



Which equation must be true?

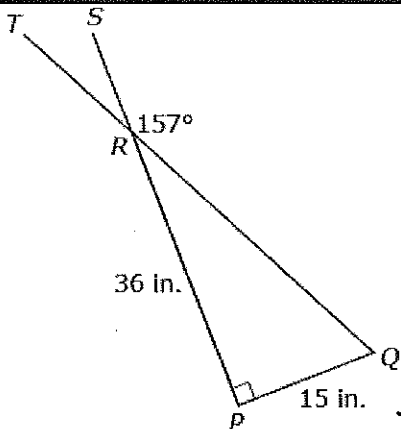
- A. $m\angle 1 = 180^\circ - m\angle 7$
- B. $m\angle 2 = 90^\circ + m\angle 5$
- C. $m\angle 3 + m\angle 4 = m\angle 7$
- D. $m\angle 5 + m\angle 6 = m\angle 7$

Line m and line n are parallel lines intersected by a transversal line l , as shown below.



Which of the following angle pairs are congruent?

- A. $\angle 1$ and $\angle 8$
- B. $\angle 2$ and $\angle 6$
- C. $\angle 6$ and $\angle 7$
- D. $\angle 8$ and $\angle 5$



Line segments PS and QT intersect at point R. Point R is a vertex of right triangle RPQ.

Part A: What is the measure of angle PQR? Explain.

$\angle PQR$ is 67° because $\angle SRQ$ & $\angle QRP$ are supplementary so $\angle QRP = 23$. The interior angles must have a sum of 180

Part B: What is the length of segment RQ? Explain.

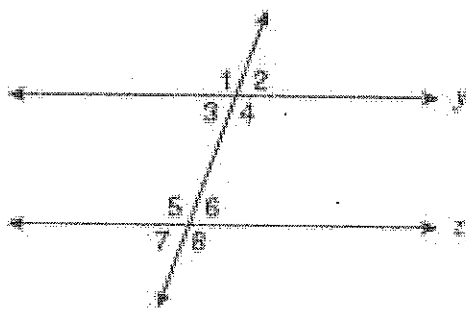
You can use Pythagorean theorem: $a^2 + b^2 = c^2$
 $15^2 + 36^2 = c^2$

$$\begin{array}{r} 180 \\ -90 \\ \hline 90 \\ -23 \\ \hline 67 \end{array}$$

$$\begin{array}{r} 225 + 1296 = c^2 \\ 1521 = c^2 \\ \sqrt{1521} = c \\ 39 = c \end{array}$$

8.G.5 Use informal arguments to establish facts about the angle sum and exterior angles triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.

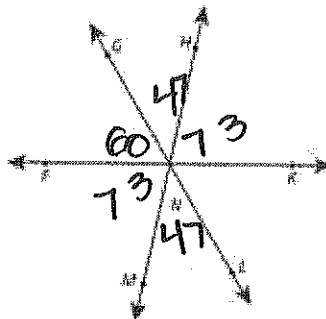
Given $m\angle 1 = 110^\circ$.



Which must be true if y is parallel to z ?

- (A.) $m\angle 8 = 100^\circ$
- (B.) $m\angle 7 = 110^\circ$
- (C.) $m\angle 6 = 80^\circ$
- (D.) $m\angle 5 = 110^\circ$

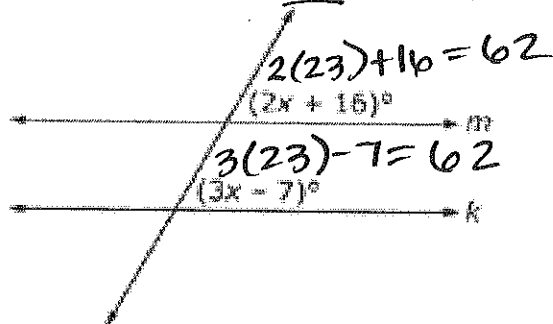
In the diagram below, three lines intersect at N . The measure of $\angle GNF$ is 60° , and the measure of $\angle MNL$ is 47° . What is the measure of $\angle HNK$?



What is the measure of $\angle HNK$?

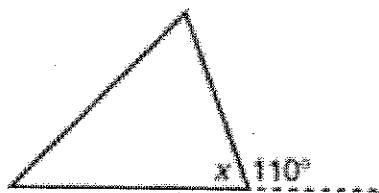
- (A.) 47°
- (B.) 60°
- (C.) 73°
- (D.) 107°

In the figure below, $x = 23$. Is line k parallel to line m ? Explain your answer.



Line k is parallel to line m because the corresponding angles are congruent.

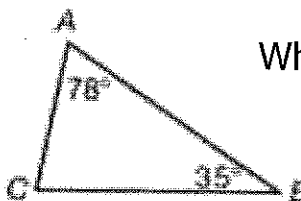
The triangle below has an exterior angle of 110 degrees.



What is the value of x ?

- (A.) 70°
- B. 80°
- C. 90°
- D. 110°

In triangle ABC , the measure of angle A is 78 degrees and the measure of angle B is 35 degrees.



What is the measure of angle C ?

- (A.) 67°
- B. 70°
- C. 77°
- D. 102°