

Name _____

Date _____

Proving Triangle Theorems - Guided Lesson Explanation**Explanation # 1**

Set up the following proportion and solve:

$$\frac{PQ}{RT} = \frac{PR}{QS}$$

$$\frac{6}{12} = \frac{PR}{14}$$

$$\frac{6 \times 14}{12} = PR$$

$$PR = 7$$

Explanation # 2

The sum of the measures of the angles of triangle is 180° .

$$\angle C = (4/4)x^\circ$$

$$\angle A = 2x^\circ$$

$$\angle B = 3x^\circ$$

$$\angle A + \angle B + \angle C = 180^\circ$$

$$2x^\circ + 3x^\circ + (4/4)x^\circ = 180^\circ, (24/4)x^\circ = 180^\circ$$

$$\angle B = 3 \times 30^\circ, \angle B = 90^\circ$$

$$(4/24) \times (24/4)x^\circ = (4/24) \times (180^\circ), x^\circ = 30^\circ$$

Explanation # 3

Measure of an exterior angle of a triangle is equal to the sum of the measures of the two non-adjacent interior angles.

$$110^\circ = \angle Q$$

$$\angle P = 30^\circ$$

$$\angle QRS = \angle P + \angle Q$$

$$140^\circ = 30^\circ + \angle Q$$

$$\angle Q = 140^\circ - 30^\circ$$

$$\angle Q = 110^\circ$$

