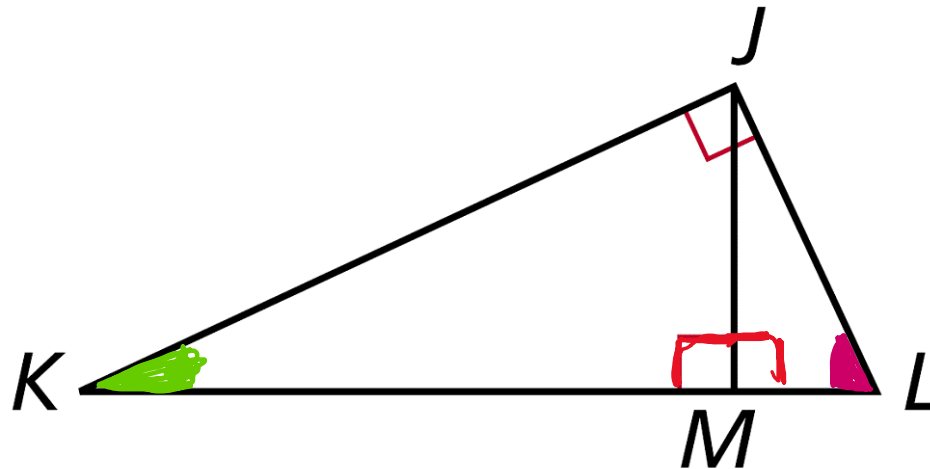


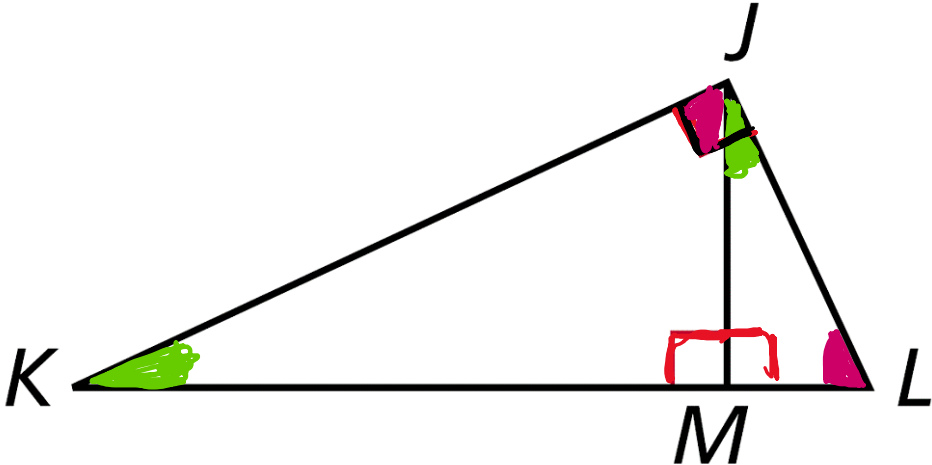
Write a similarity statement comparing the three triangles.



$$\left\{ \begin{array}{l} m\angle L + m\angle LJM = 90^\circ \\ m\angle L + m\angle K = 90^\circ \end{array} \right.$$

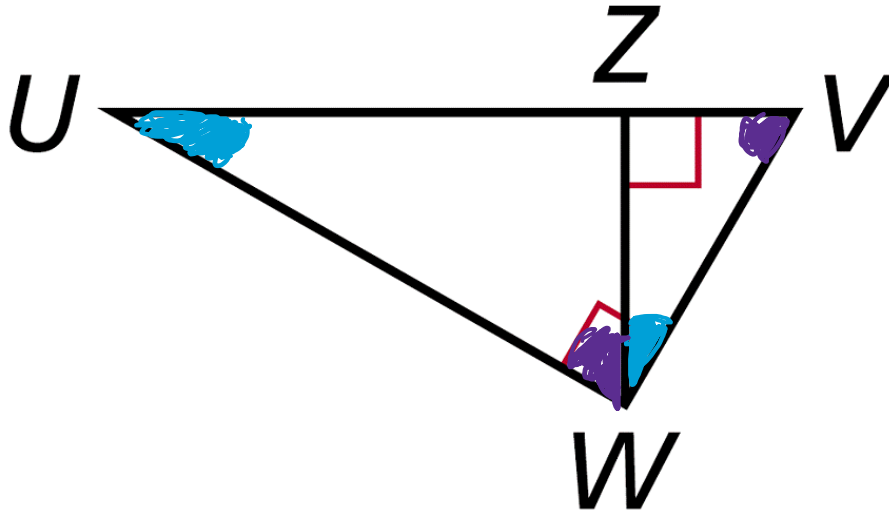
$$\angle K \cong \angle LJM$$

Write a similarity statement comparing the three triangles.



$$\triangle KJL \sim \triangle KJM \sim \triangle JML$$

Write a similarity statement comparing the three triangles.

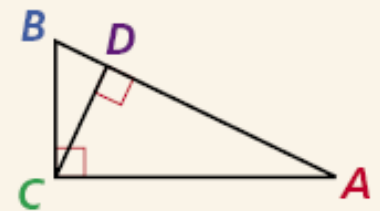


$$\triangle UVW \sim \triangle UWZ \sim \triangle VWZ$$

$$\triangle VWU \sim \triangle WZV \sim \triangle VZW$$

The altitude to the hypotenuse of a right triangle forms two triangles that are similar to each other and to the original triangle.

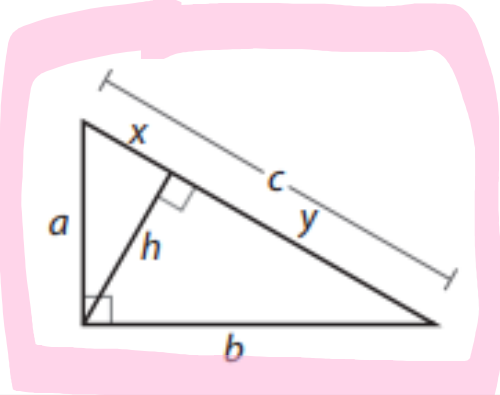
$$\triangle ABC \sim \triangle ACD \sim \triangle CBD$$



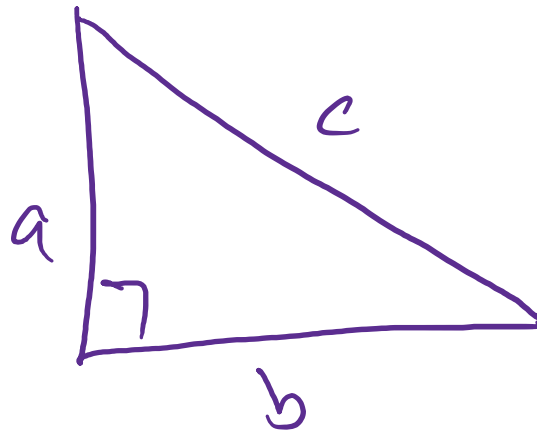
The geometric mean of two positive numbers is the positive square root of their product.

Pg. 9/10

Geometric Means Theorems

Theorem	Example	Diagram
The length of the altitude to the hypotenuse of a right triangle is the geometric mean of the lengths of the segments of the hypotenuse.	$h^2 = xy$ or $h = \sqrt{xy}$	
The length of a leg of a right triangle is the geometric mean of the lengths of the hypotenuse and the segment of the hypotenuse adjacent to that leg.	$a^2 = xc$ or $a = \sqrt{xc}$ $b^2 = yc$ or $b = \sqrt{yc}$	

Remember:
The Pythagorean Theorem



$$a^2 + b^2 = c^2$$

$$h^2 = xy$$

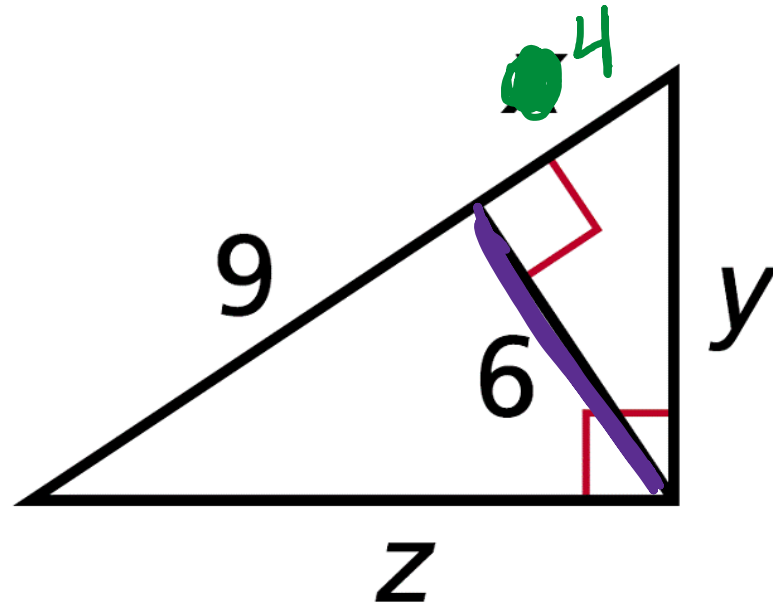
Find x, y, and z.

1) Find X.

$$6^2 = 9 \cdot x$$

$$36 = 9x$$

$$4 = x$$



Find x , y , and z .

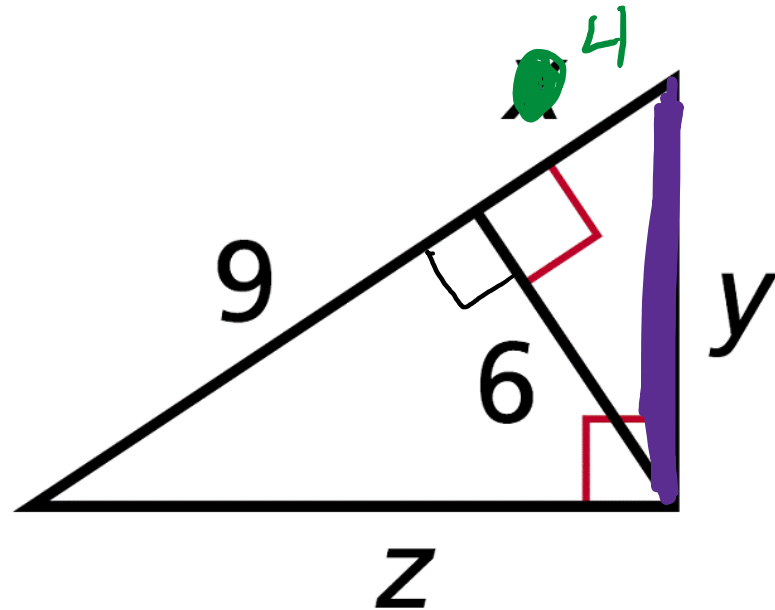
2) Find y .

$$y^2 = 13 \cdot 4$$

$$\sqrt{y^2} = \sqrt{52}$$

$$y = 2\sqrt{13}$$

$$a^2 = xc$$



$$b^2 = yc$$

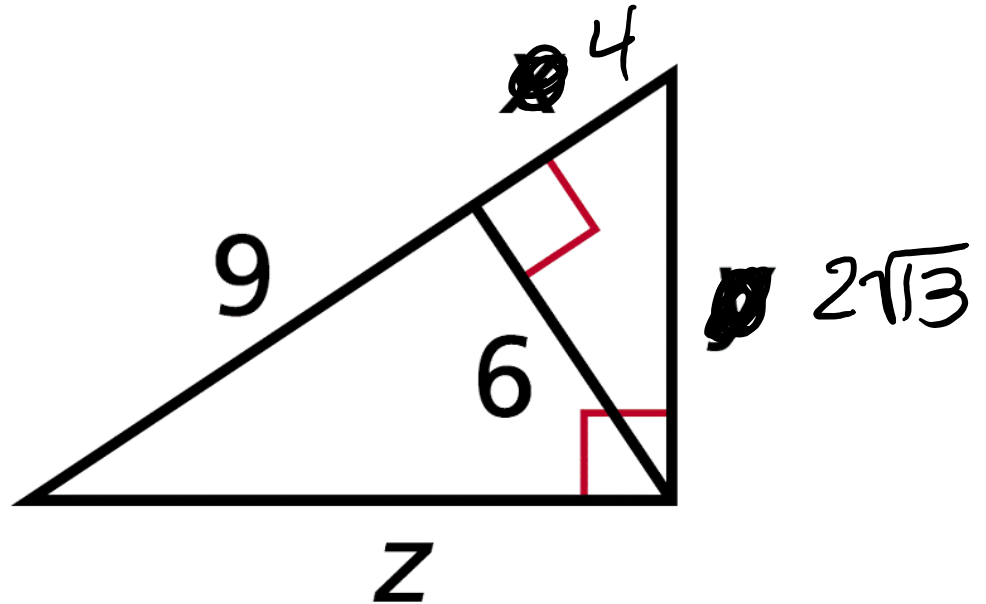
Find x , y , and z .

3) Find z .

$$z^2 = 1$$

$$z^2 = 117$$

$$z = 3\sqrt{13}$$

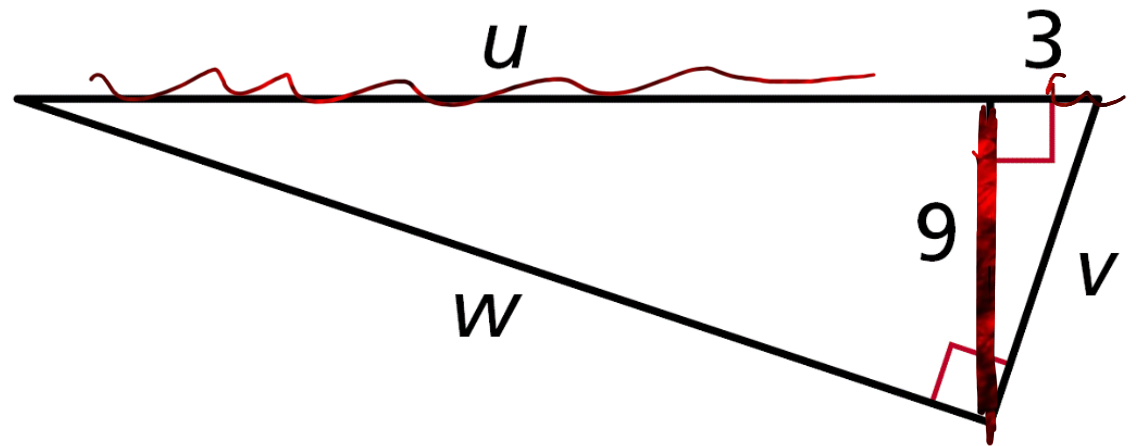


Find u , v , and w .

$$\star 9^2 = 3 \cdot u$$

$$81 = 3u$$

$$27 = u$$

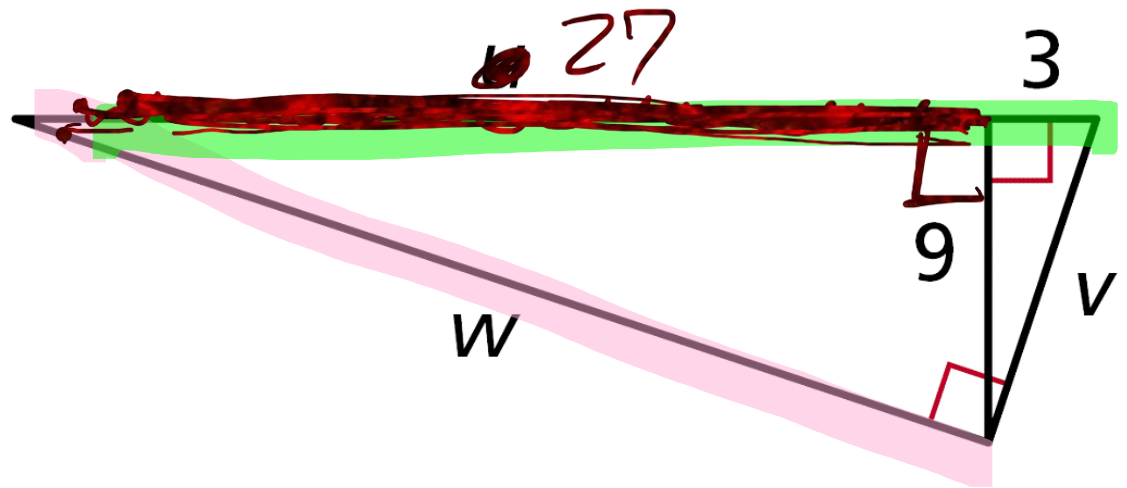


Find u , v , and w .

$$W^2 = 30(27)$$

$$W^2 = 810$$

$$W = 9\sqrt{10}$$

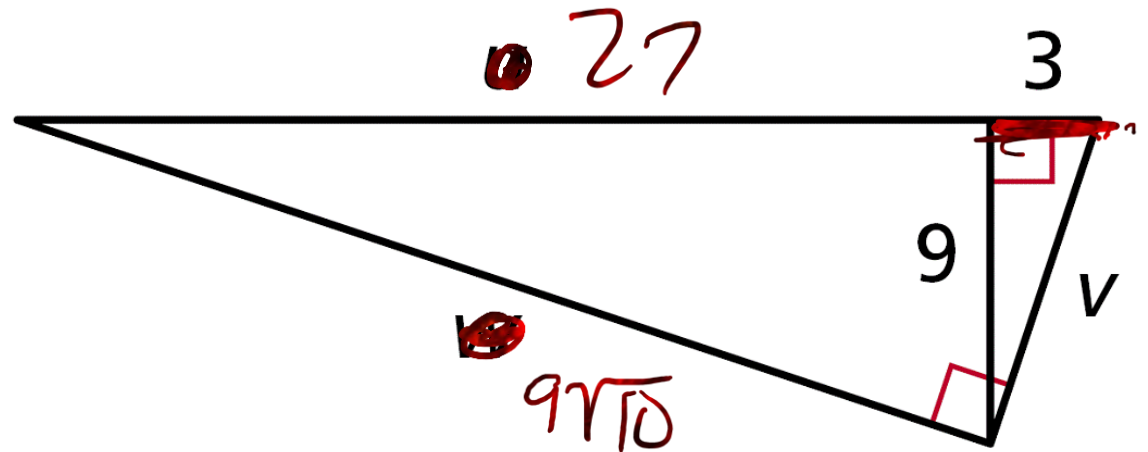


Find u , v , and w .

$$V^2 = 30(3)$$

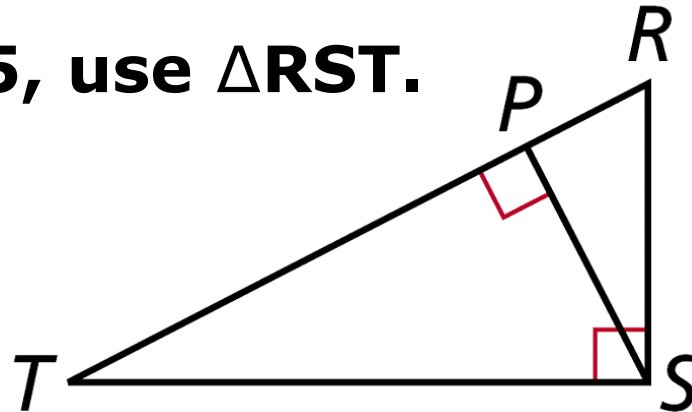
$$V^2 = 90$$

$$V = 3\sqrt{10}$$



Review Part II

For Items 3–5, use $\triangle RST$.



3. Write a similarity statement comparing the three triangles. $\triangle RST \sim \triangle RPS \sim \triangle SPT$

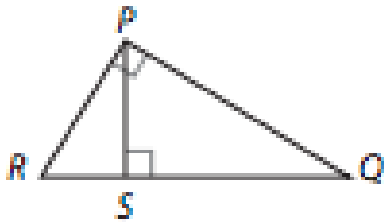
4. If $PS = 6$ and $PT = 9$, find PR . 4

5. If $TP = 24$ and $PR = 6$, find RS . $6\sqrt{5}$

Classwork

PG. 921 (1 – 3, 10 – 12)

1.



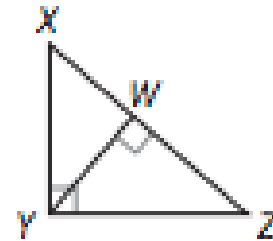
$$\triangle PQR \sim \triangle SPR \sim \triangle SQP$$

2.



$$\triangle BDE \sim \triangle EDC \sim \triangle BEC$$

3.



$$\triangle XYZ \sim \triangle XWY \sim \triangle YWZ$$

• EXAMPLE

$$y^2 = 25 \cdot x$$

Find x , y , and z .

$$65^2 = (25 + x) \cdot 25$$

10.



$$z^2 = (25 + x) \cdot x$$

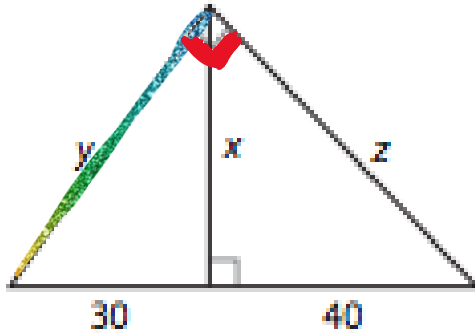
$$4225 = 625 + 25x$$

$$x = 144$$

$$y = 60$$

$$z = 154$$

11.



Leg

$$y^2 = 70(30)$$

$$y^2 = 2100$$

$$y = 10\sqrt{21}$$

Altitude

$$x^2 = 30(40)$$

$$x^2 = 1200$$

$$x = \sqrt{1200}$$

$$x = 20\sqrt{3}$$

Leg

$$z^2 = 70(40)$$

$$z^2 = 2800$$

$$z = \sqrt{2800}$$

$$z = 20\sqrt{7}$$