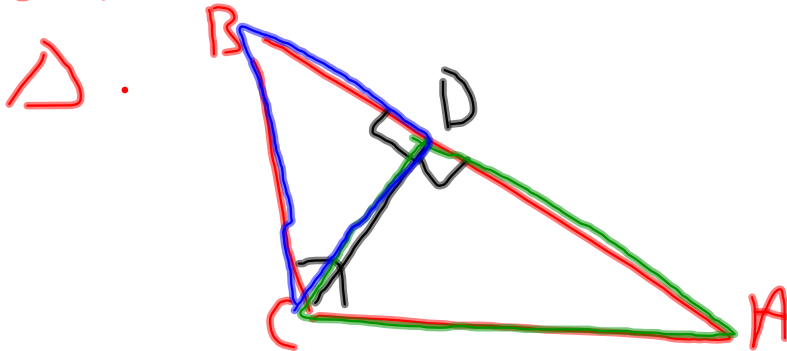


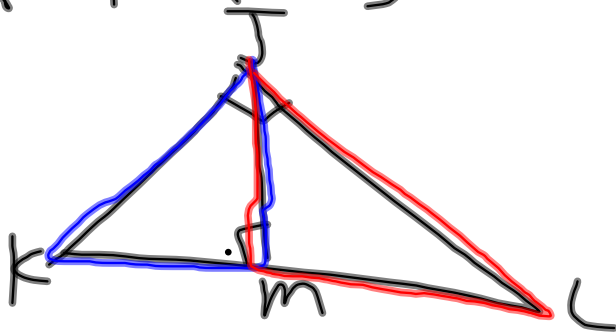
8.1 Similarity in Rt. Δ 's

Theorem 8-1-1: the altitude to the hypotenuse of a rt. Δ forms 2 Δ 's that are similar to each other and to the original



$$\Delta ABC \sim \Delta ACD \sim \Delta CBD$$

Write a similarity statement
for the } Δ 's



$$\Delta KJL \sim \Delta KJM \sim \Delta JML$$

Geometric mean: Square root
of the product of 2 numbers

Ex: $8 + 2$

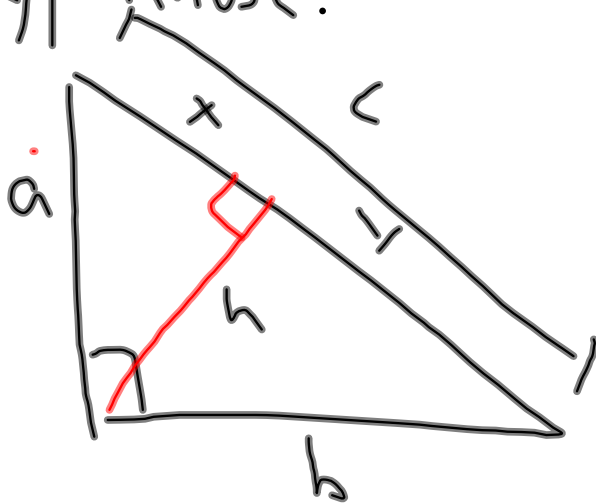
$$\sqrt{8 \cdot 2} = \sqrt{16} = 4$$

Ex: $2 + 25$

$$\sqrt{2 \cdot 25} = \sqrt{50} = \sqrt{25} \sqrt{2} = 5\sqrt{2}$$

Corollary 8-1-2:

the length of the altitude to the hypotenuse of a rt. Δ is the geo. mean of the lengths of the 2 segments forming the hypotenuse.

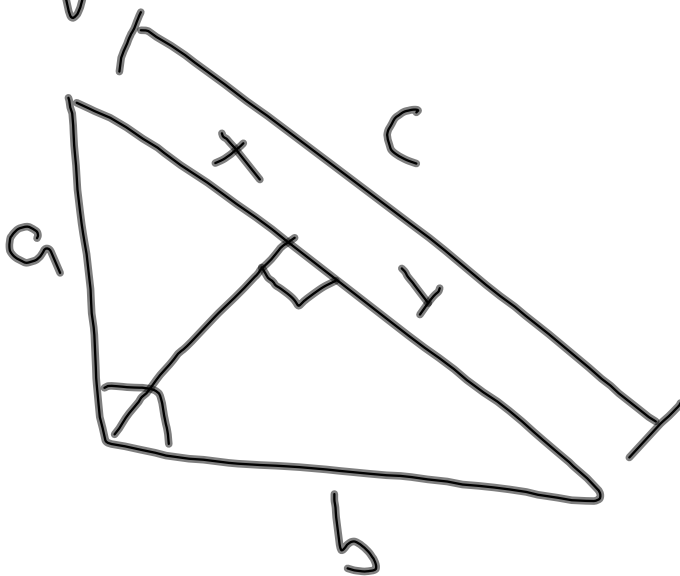


$$h^2 = xy$$

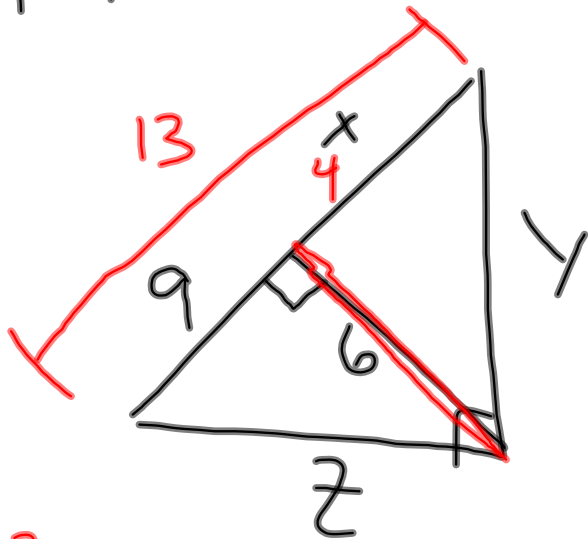
$$a^2 = xc$$

$$b^2 = yc$$

Corollary 8-1-3: the length of the leg of a rt. Δ is the geo. mean of the length of the hypotenuse & the segment adjacent to that leg.



Find x, y, z



$$6^2 = 9x$$
$$\frac{36}{9} = \frac{9x}{9}$$
$$x = 4$$

$$y^2 = 4 \cdot 13$$
$$\sqrt{y^2} = \sqrt{52}$$
$$y = \sqrt{52}$$

$$y = \sqrt{4} \sqrt{13}$$
$$y = 2\sqrt{13}$$

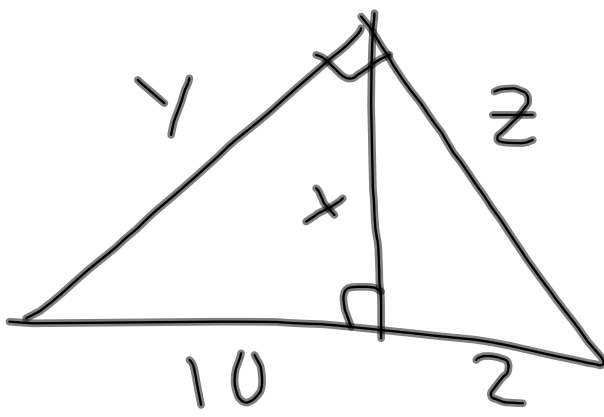
$$z^2 = 9 \cdot 13$$

$$\sqrt{z^2} = \sqrt{117}$$

$$z = \sqrt{117}$$

$$z = \sqrt{9} \cdot \sqrt{13}$$

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



p. 521 2-28 even 36-38 even
odds extra credit