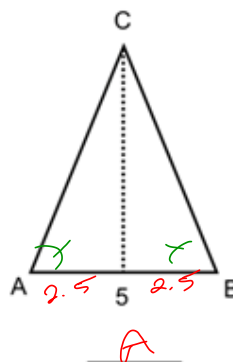
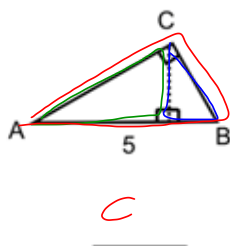
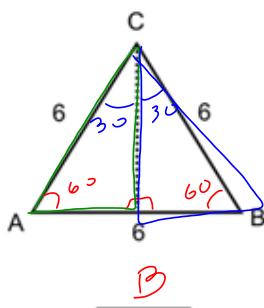


LESSON 6 – THINK-PAIR-SHARE

Question 1: Match the following statements with only one of the below triangles:

- a) The altitude bisected \overline{AB} into two congruent segments 2.5 units long.
- b) The height made two congruent triangles with an angle of 30 degrees.
- c) The altitude made three similar right triangles.



Question 2: Fill in the blank:

a) If $\triangle CHB \sim \triangle ACH$, then

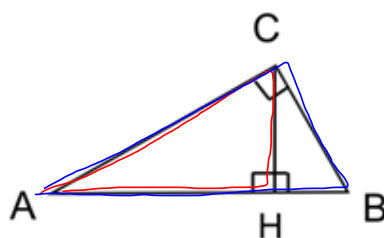
$$\left(\begin{array}{l} \triangle CHB \rightarrow \\ \triangle ACH \rightarrow \end{array} \right) \frac{\overline{CH}}{\overline{AH}} = \frac{\overline{HB}}{\overline{CH}}$$

b) If $\triangle ACH \sim \triangle ABC$, then

$$\left(\begin{array}{l} \triangle ACH \rightarrow \\ \triangle ABC \rightarrow \end{array} \right) \frac{\overline{AC}}{\overline{AB}} = \frac{\overline{AH}}{\overline{AC}} = \frac{\overline{HC}}{\overline{CB}}$$

c) If $\triangle ACH \sim \triangle ABC$, then

$$\left(\begin{array}{l} \triangle ACH \rightarrow \\ \triangle ABC \rightarrow \end{array} \right) \frac{\overline{AC}}{\overline{AB}} = \frac{\overline{CH}}{\overline{CB}}$$



P10 - P12

Recall: Average / mean
 ↳ middle point

Test marks { 80, 84 }

Arithmetic

$$\text{Mean} = \frac{80 + 84}{2}$$

$$\text{mean} = 82$$

$$\text{Geometric mean} = \sqrt{80 \times 84}$$

$$\text{GM} = 81.98\%$$

Test mark { 80, 84, 88 }

Arithmetic

$$\text{Mean} = \frac{80 + 84 + 88}{3}$$

$$\text{mean} = 84$$

$$\text{GM} = \sqrt[3]{80 \times 84 \times 88}$$

$$\text{GM} = 84\%$$

Find the following geometric mean

{ 60, 77 }

$$\sqrt{\text{GM}^2} = \sqrt{60 \times 77}$$

$$\text{GM} = \sqrt{(60 \times 77)}$$

$$\text{GM} =$$

{ 89, 91 }

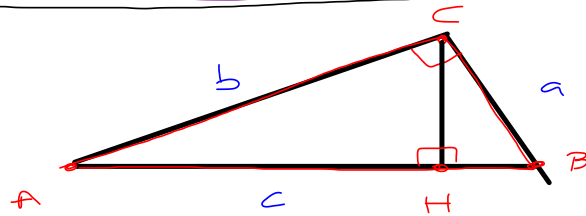
{ 95, 100 }

Lesson 6: Metric Relations

1st Metric Relation: → pg 61

Recall:

$$\frac{\overline{CH}}{\overline{AH}} = \frac{\overline{HB}}{\overline{CH}}$$



$$\overline{CH} \times \overline{CH} = \overline{AH} \times \overline{HB}$$

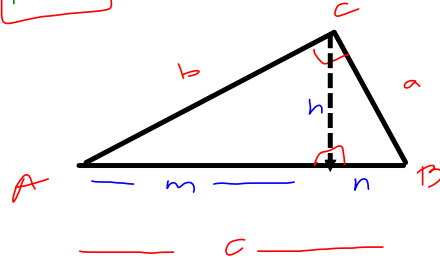
$$\overline{CH}^2 = \overline{AH} \times \overline{HB}$$

↑ altitude

↑ segment of hypo

↑ 2nd seg of hypo

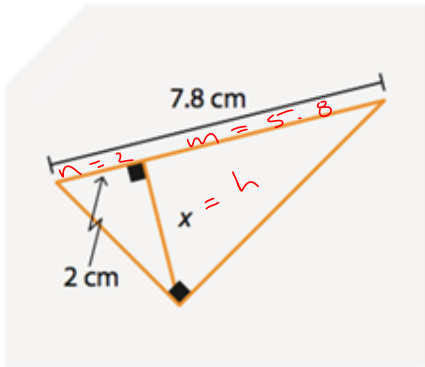
P11: $a^2 = \text{seg} \times \text{seg}$



Determine Unknown Side Lengths

P 62

a)



pg 62

Do 4 b) - c)

→ work together.

P11: $h^2 = m \times n$

Step i: Label height and segments

Step ii: Write equation and then sub in values.

$$h^2 = m \times n$$

$$x^2 = 5.8 \times 2$$

Step iii: Solve w oppos. operation

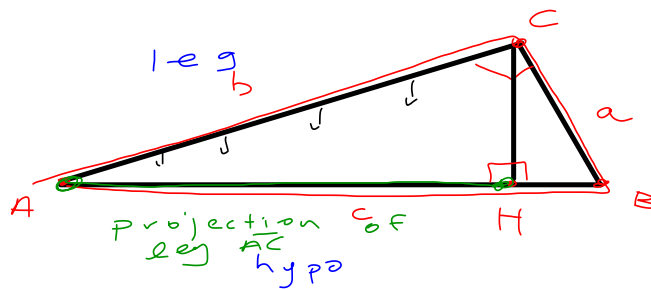
$$\sqrt{x^2} = \sqrt{5.8 \times 2}$$

$$x = 3.4 \text{ cm}$$

2nd Metric Relation

Recall:

$$\frac{\overline{AC}}{\overline{AB}} = \frac{\overline{AH}}{\overline{AC}}$$



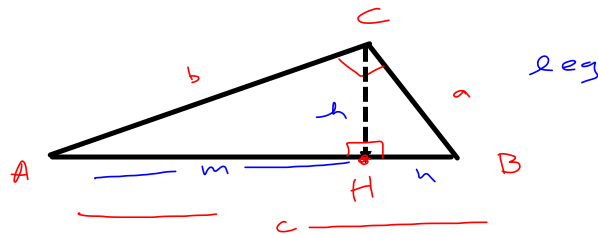
$$\overline{AC} \times \overline{AC} = \overline{AB} \times \overline{AH}$$

$$\overline{AC}^2 = \overline{AB} \times \overline{AH}$$

leg hypo proj of leg

PI0

$$\text{leg}^2 = \text{proj} \times \text{hypo}$$



PI0

$$a^2 = n \times c$$

$$b^2 = m \times c$$

Step i. Label leg / its proj / hypo.

Step ii. formula and then values

$$a^2 = n \times c$$

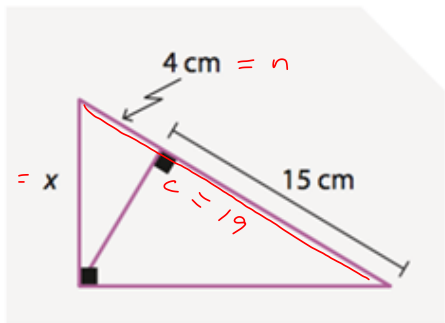
$$x^2 = 4 \times 19$$

Step iii. Solve w/ o.o.

$$x^2 = \sqrt{4 \times 19} \quad x = 8.72 \text{ cm}$$

P 63 Determine Unknown Side Lengths

a)



Pg 63

Do > b) - c)

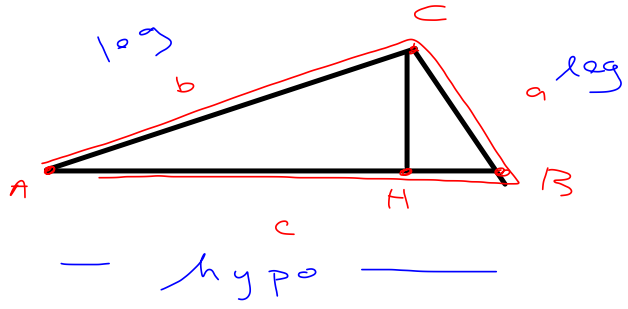
Slowly and carefully.

3rd Metric Relation

pg 65

Recall:

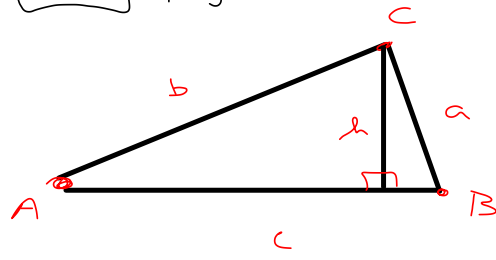
$$\frac{\overline{AC}}{\overline{AB}} = \frac{\overline{CH}}{\overline{CB}}$$



$$\overline{AC} \times \overline{CB} = \overline{AB} \times \overline{CH}$$

↑ leg ↑ leg ↑ hypo ↑ alt.

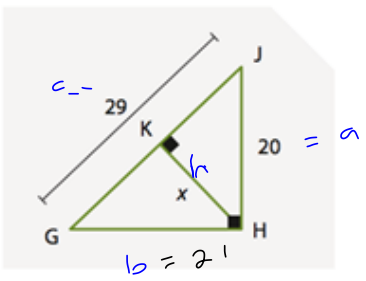
P12 leg x leg = alt x hypo



P12 a x b = h x c

Determining Unknown Side Length

b)



STEP LABEL

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

$$29^2 = 20^2 + 21^2$$

$$a \times b = h \times c$$

$$20 \times 21 = x \times 29$$

P 65
of a), c)

P 68 #1 - #2
P 69 #5
P 70 #8
P 71 #9