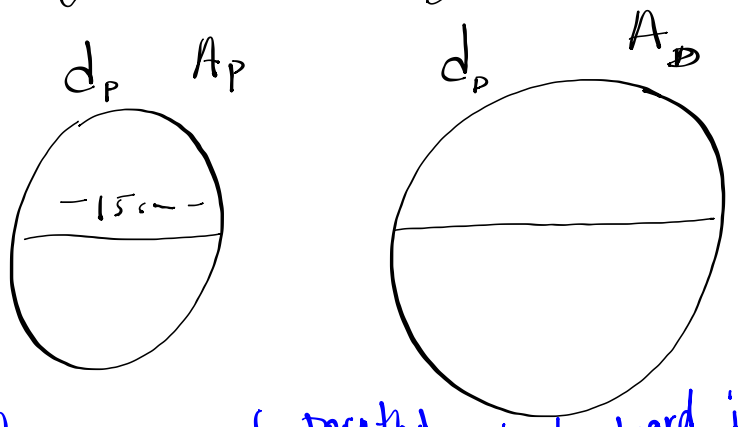
making an equation by translating a sentence.

p 4.12 #5



The area of Dorothy's dart board is 4 times that of Paul's. (dart board Areas)

$$\frac{A_D}{A_P} = \frac{4 \cdot A_P}{A_P}$$

$$\frac{A_D}{A_P} = 4$$

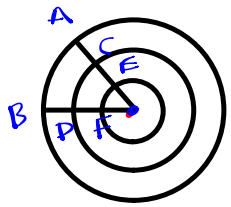
Th 12 $\frac{A_D}{A_P} = \frac{d_D^2}{d_P^2} = x$

$d_P = 15$

$$4 = \frac{x^2}{(15)^2}$$

Pretest A

#2



$\overset{\frown}{mAB} = 3 \cdot \overset{\frown}{mFE}$

$\frac{OA}{OE} = \frac{3 \cdot OE}{OE}$

$\frac{OA}{OE} = 3$

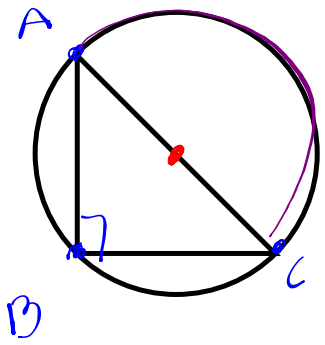
Th 13

$\frac{r_B}{r_S} = \frac{\text{Arc}}{\text{Arc}}$

$\angle FOF = \angle AOB$

Unit 5: Theorems Involving Right Triangles

Theorem 18

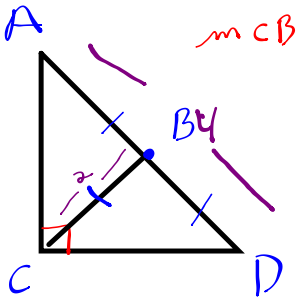


$\overline{AC}$ - hypo
$\angle B$ diameter.

Theorem 19:

- $m\angle CB = \frac{1}{2} m\overset{\frown}{AD}$

$m\angle CB = m\overset{\frown}{AB} = m\overset{\frown}{BD}$

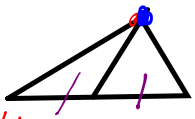


$AD = 4$ units

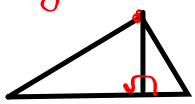
$CB = 2$ units

Recall:

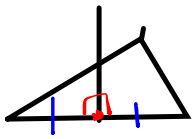
Median:



altitude/height

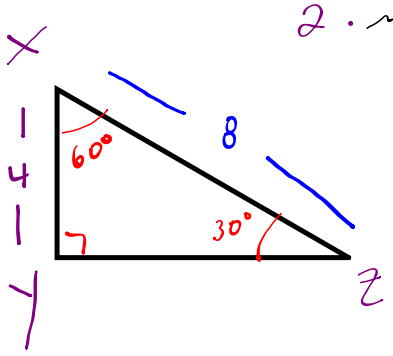


Perpendicular bisector



Theorem 20

$2 \cdot m\angle XY = \left(\frac{1}{2} m\angle XZ\right) \cdot 2$

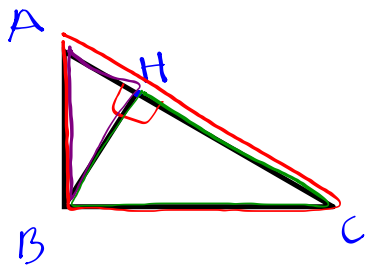


Based on th 20, true or false:

$2\, m\angle XY = m\angle XZ$

True.

Theorem 21



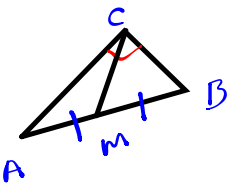
red
purple

$\triangle ABC \sim \triangle ABH \sim \triangle BHC$

green $\frac{BC}{AB} = \frac{HB}{AH} = \frac{CH}{BH}$

small

$\frac{\text{hypo}_m}{\text{hypo}_s} = \frac{\text{small}_m}{\text{small}_s} = \frac{\text{median}_m}{\text{median}_s}$



$m\overline{CM} = 12$ unit

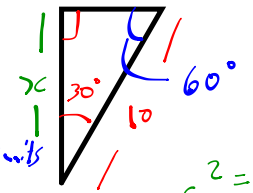
Find $m\overline{AB}$

justify answer w/ theorem

---

h 20

C — 5 — A



$m\overline{AB} = 10$ units

Find $m\overline{CB}$

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

$10^2 = 5^2 + b^2$

$\sqrt{10^2} = \sqrt{10^2 - 5^2}$

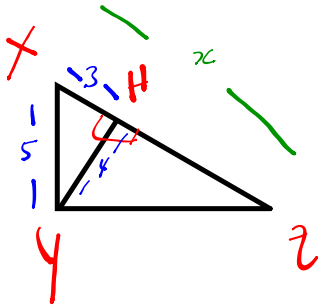
- identify what you're looking at and pick appropriate theorem.

$m\overline{XH} = 3$

$m\overline{YH} = 4$

$m\overline{XY} = 5$

find $m\overline{XZ}$



Th 2Y Big / Small : $\frac{x}{XY} = \frac{XY}{HY}$

$\frac{x}{5} = \frac{5}{4}$

$x = \frac{25}{4}$

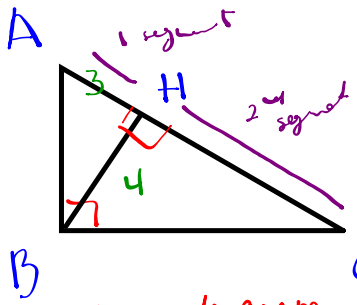
Definition:

Arithemic Mean (Average): $\frac{x_1 + x_2 + x_2 + \cdots + x_n}{n}$

Geometric Mean: $\sqrt[n]{x_1 \cdot x_2 \cdot x_3 \cdot \ldots \cdot x_n}$

Find the geo mean of $\{81, 89, 89\}$ | geo mean $\{77, 79\}$

Theorem 22



Based on this diagram

- $BH = \sqrt{AH \cdot CA}$ F $BH = \sqrt{AH \cdot CH}$
- $BH^2 = HA \cdot HC$ T

$m\overline{BH}^2 = \overline{AH} \cdot \overline{HC}$

$m\overline{BH} = \sqrt{\overline{AH} \cdot \overline{HC}}$

$(4)^2 = (\sqrt{3 \cdot HC})^2$

$16 = 3 \cdot HC$

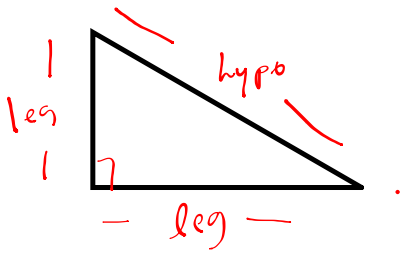
$\frac{16}{3} = \frac{3 \cdot HC}{3}$

$HC = 5.33$

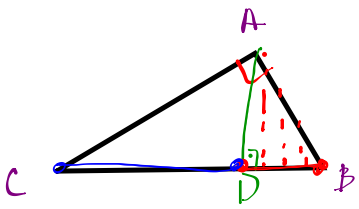
$AC = 3 + 5.33$

$AC = 8.33$

Definition:



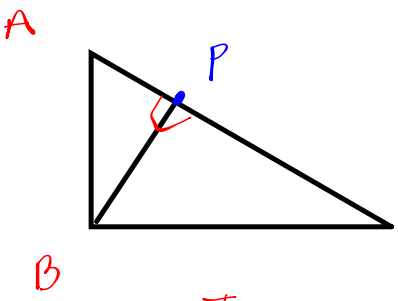
The projection of AB onto BC
a line segment



DB the projection of AB

CD the projection of AC.

Theorem 23:



$m\overline{AB} = \sqrt{\overline{AP} \cdot \overline{AC}}$

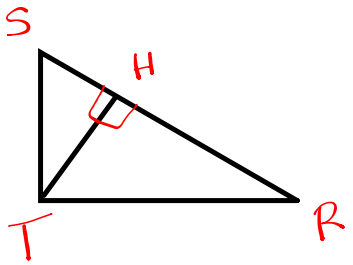
$m\overline{BC} = \sqrt{\overline{PC} \cdot \overline{AC}}$

True or False? Based on the diagram:

$\overline{BA} = \sqrt{AP \cdot PC}$

$\overline{BP} = \sqrt{AP \cdot PC}$

Theorem 24:

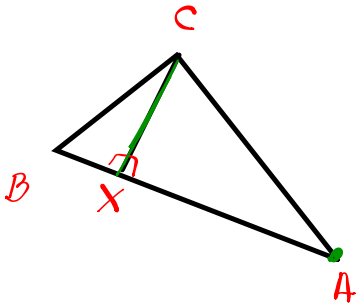


$\overline{ST} \cdot \overline{TR} = \overline{SR} \cdot \overline{TH}$

$m\overline{BX} = 4.5$

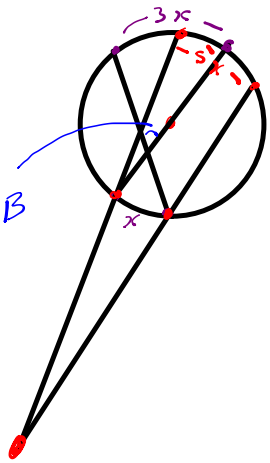
$m\overline{CX} = 6$

find $m\overline{CA}$



Pick a theorem that has what you have and what you want

Prove that
$\angle A = \angle B$



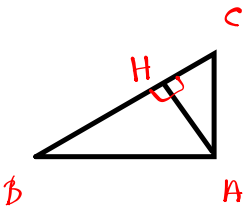
Statements	Justification
$\angle A$	
$\frac{1}{2}(5x - x)$	Th 17
$\frac{1}{2}(4x)$ (2x)	simplify
$\frac{1}{2}(3x + x)$	Algebra
$\angle B$	Th 16 (in reverse)

$\angle B = \frac{1}{2}(3x + x)$
$= \frac{1}{2}(4x)$
$= 2x$

Do #8 and #9
of
Pretest C

$m\overline{AH} = 5$

$m\overline{CH} = x$



Find $m\overline{BH}$

(final answer in terms of x)

(rewrite $\overline{BH}$ in symbolic language (the symbol being x))

Th 22

$HA = \sqrt{HB \cdot HC}$

$(5)^2 = \left(\sqrt{BH \cdot x}\right)^2$

isolate BH

solve for BH in terms of x.

$25 = BH \cdot x$

$\frac{25}{x} = BH$

$BH = \frac{25}{x}$

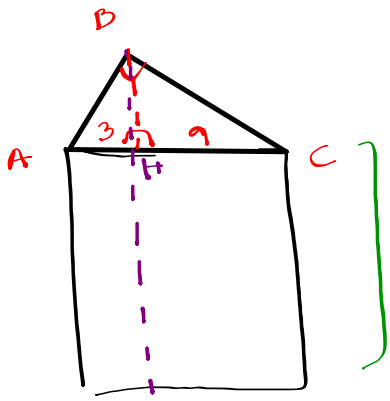
$\angle A = \frac{1}{2}(5x - x)$

$\angle A = 2x$

Unit 6 : More Word Questions

P 6.4

How tall is the house?



Th 22

$BH = \sqrt{AH \cdot HC}$

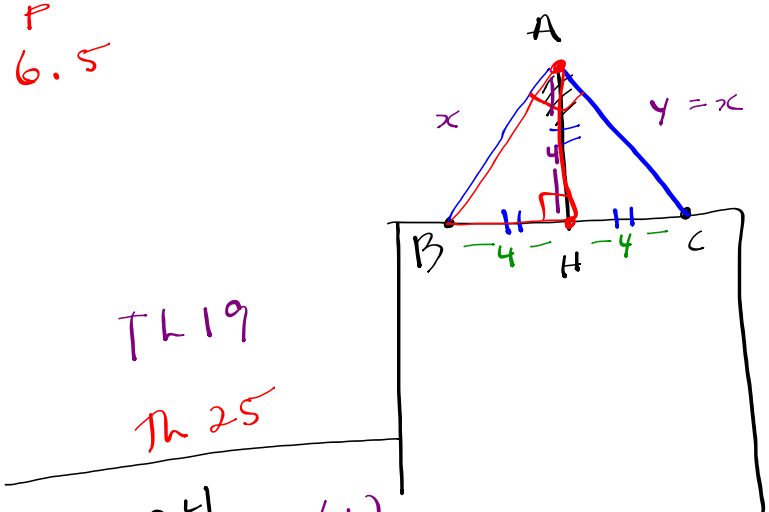
$BH = \sqrt{3 \cdot 9}$

$BH = 5.19$

Total height $= 5.19 + 12$

$= 17.196$ units

P
6.5



How much cable does he need?

Th 19

Th 25

The 24

$x \cdot x = 4(8)$

$\sqrt{x^2} = \sqrt{32}$ $x \approx 5.65$

Th 23

$AB = \sqrt{BH \cdot BC}$

$AB = \sqrt{4 \cdot 8}$

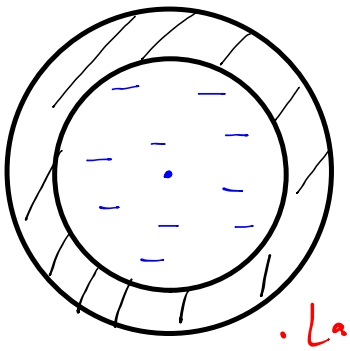
$AB = 5.65$

Total cable: $5.65 \times 2 = 11.31$ units.

The area of the ice rink is $30 m^2$.

The radius of the larger circle is 1.5 times larger than the radius of the ice rink.

Determine the area of the pavement.



- Label
- Translate sentences into equations
- Pick theorem that uses element of the question.

$$\frac{r_L}{r_I} = 1.5$$

$$\frac{A_L}{A_I} = \frac{r_L^2}{r_I}$$

$$A_{pave} = A_L - A_S$$
$$= 67.5 - 30$$

$$\frac{A_L}{A_I} = \left(\frac{r_L}{r_I}\right)^2$$

$$A_{pavement} = 37.5 \text{ units}^2$$

$$\frac{A_L}{30} = (1.5)^2$$

$$A_L = 30 \cdot (1.5)^2$$

$$A_L = 67.5$$