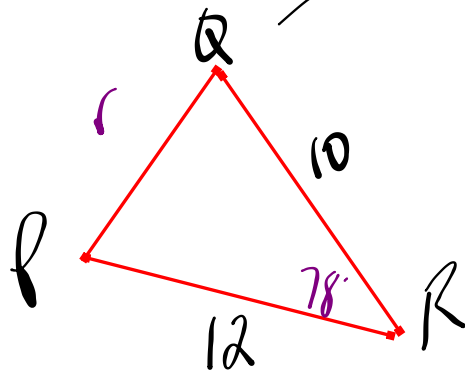


Hw: 10.11 \rightarrow # 1-7 Questions

③ $p = 10$
 $q = 12$
 $\angle R = 78^\circ$
 $\cos R = \left(\frac{1}{5}\right)$
 $r = ?$



$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$r^2 = 12^2 + 10^2 - 2(12)(10)\left(\frac{1}{5}\right)$$

$$\sqrt{r^2} = \sqrt{96}$$

$$r = 14$$

Application Questions - Law of Cosines

Ask yourself...

1. What am I given?
2. What am I trying to find?

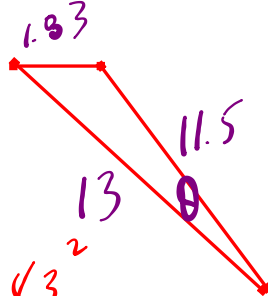


EXAMPLE...

A hockey net is 1.83m wide. A player shoots from a point where the puck is 13m from one goal post and 11.5m from the other. Within what angle must he make his shot to score?



$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$



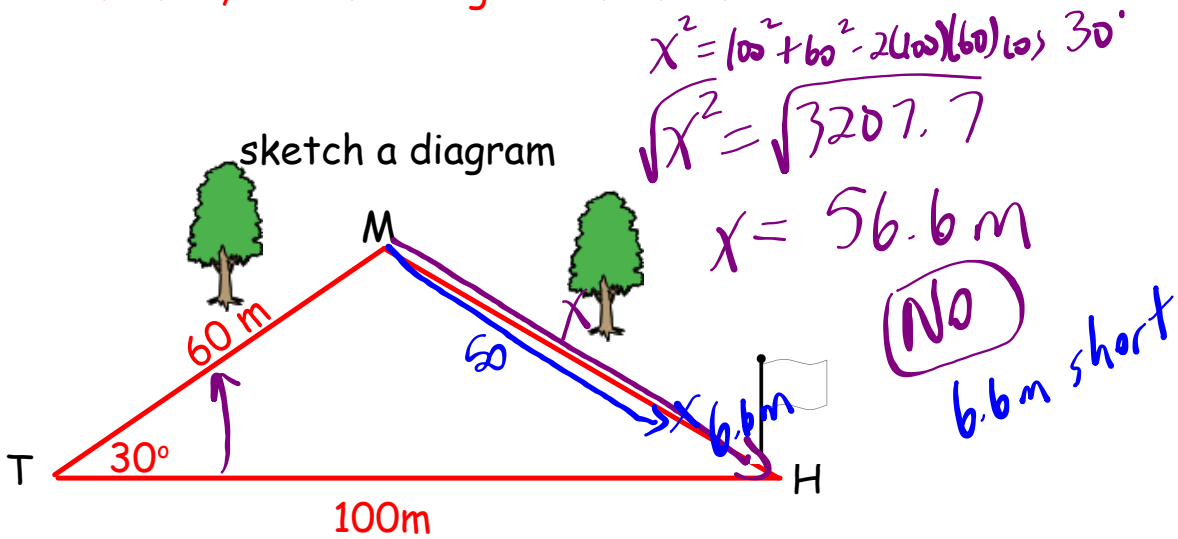
$$\cos A = \frac{13^2 + 11.5^2 - 1.83^2}{2(13)(11.5)}$$

$$\cos A = \left(\frac{297.9011}{299} \right)$$

$$\angle A = 5^\circ$$

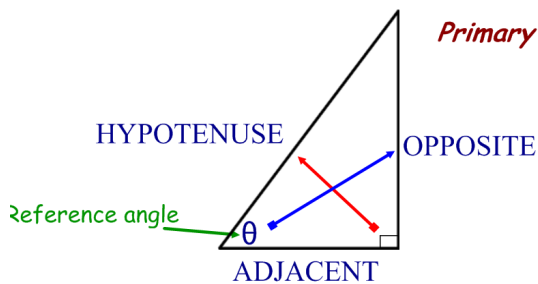
Example #2:

From T, a golfer aims a ball towards the hole at H which is 100m away. But the ball actually sliced in a direction 30° off course and lands at M, 60m away. If the next shot is hit 50 m towards the hole, will the ball go in the hole?



REVIEW - What formula do I use? Ask yourself...

- Is it a right triangle? If Yes, then...



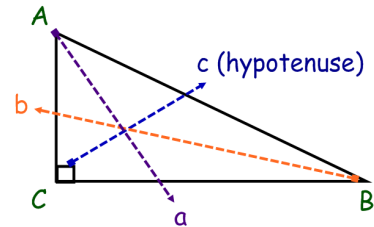
Primary Trigonometric Ratios

$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

Pythagorean Theorem



Memory Aid: "SOH CAH TOA"

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

- If you are finding a side, do you have **SAS**? If Yes, then...

Law of Cosines

$$a^2 = b^2 + c^2 - 2bc \cos A$$

- If you are finding an angle, do you have **SSS**? If Yes, then...

Law of Cosines (rearranged)

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

- Anything else...use your Law of Sines!

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

↑
"when looking for a side"

↑
"when looking for an angle"