

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

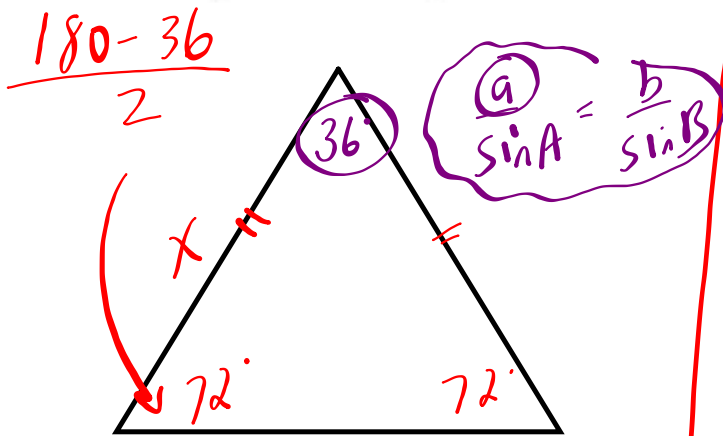
$$\frac{36.2 \sin E}{36.2} = \frac{36.2 \sin 28^\circ}{26.4}$$

$$\sin^{-1} \sin E = (0.6437)$$

① $\angle E = 40^\circ$

② $\angle F = 180 - 28 - 40$
 $\angle F = 112^\circ$

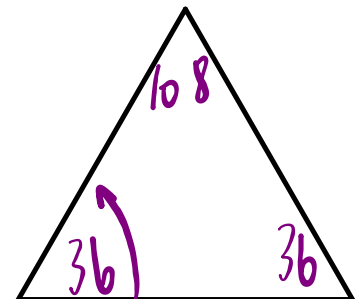
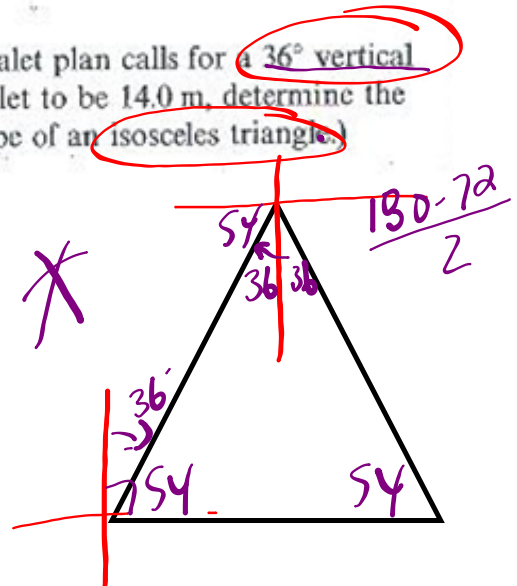
C 4 To avoid heavy snow loads on the roof, a ski chalet plan calls for a 36° vertical angle. Assuming the width of the base of the chalet to be 14.0 m, determine the slant height of the roof. (The chalet is in the shape of an isosceles triangle.)

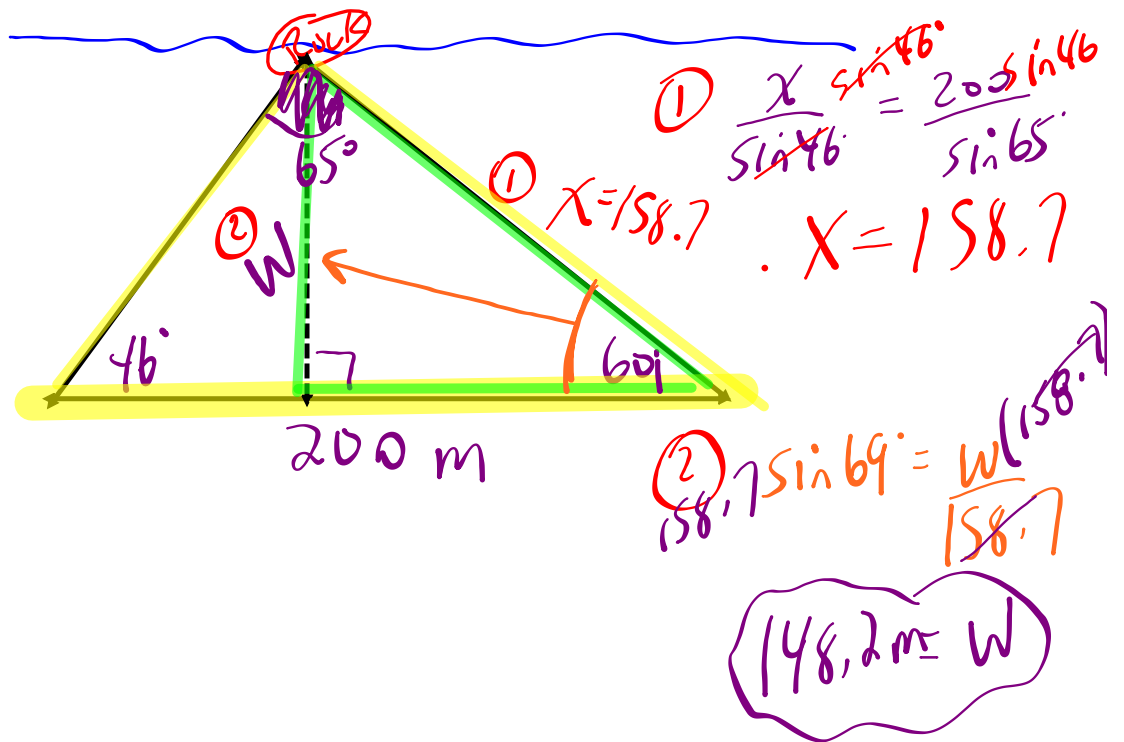


$$\frac{180 - 36}{2}$$

$$\frac{X \sin 72^\circ}{\sin 36^\circ} = \frac{14 \sin 72^\circ}{\sin 36^\circ}$$

$$X = 22.7\text{m}$$

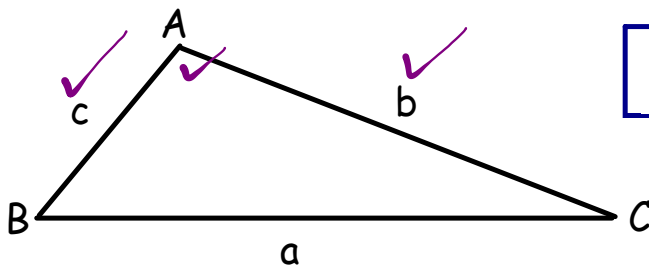




LAW OF COSINES...

Finding an unknown side...

- 2 sides and a contained angle (SAS)



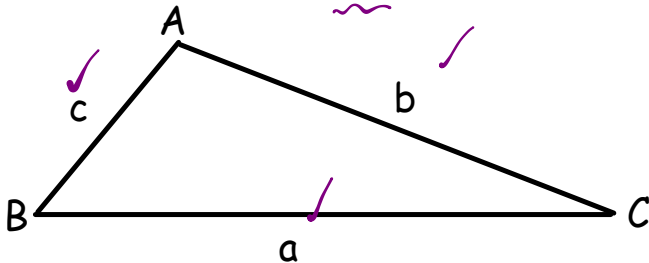
$$a^2 = b^2 + c^2 - 2bc \cos A$$

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

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

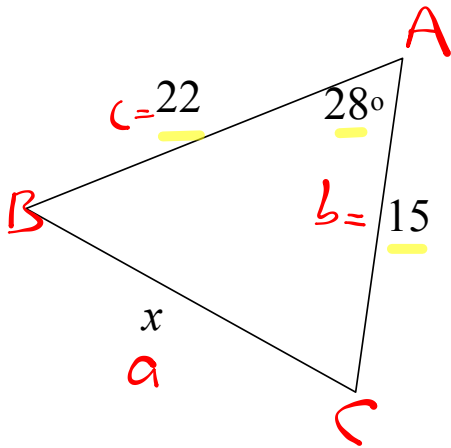
Finding an unknown angle...

- 3 known sides (SSS)



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

EXAMPLE: Finding an unknown side. $a^2 = b^2 + c^2 - 2bc \cos A$

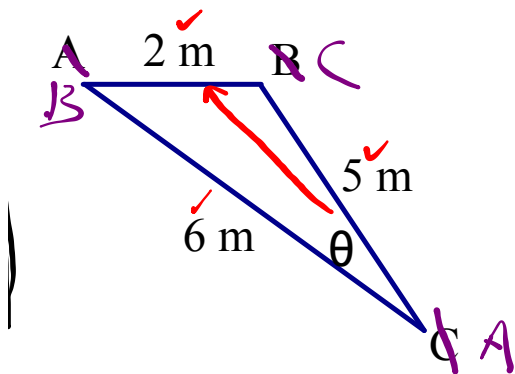


$$x^2 = 15^2 + 22^2 - 2(15)(22)\cos 28$$

x^2	$15^2 + 22^2 - 2 * 15 * 22 \cos(28)$
x^2	126.2545887
x	$\sqrt{\text{Ans}}$
x	11.23630672

$x = 11.2$

EXAMPLE: Finding an unknown angle. (SSS) $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$



$$\cos \theta = \frac{6^2 + 5^2 - 2^2}{2(6)(5)}$$

$$\cos \theta = \frac{57}{60}$$

$$\cos^{-1}(\cos \theta) = \cos^{-1}(0.95)$$

$$\theta = 18^\circ$$

Homework...

~~10.11~~
~~Worksheet - Law of Cosines.doc~~ QUESTIONS???

#1, 2, 3, 4, Sab, ba, Tab

Attachments

Worksheet - Law of Cosines.doc