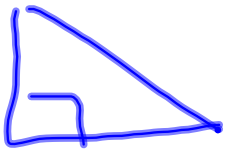
If you are looking for a side → sin cos tan

Review #1- Trigonometry

SOH CAH TOA

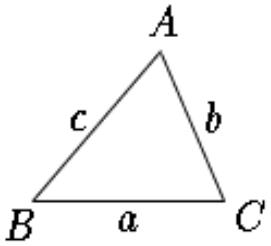


$\sin\theta = \frac{o}{h}$ $\cos\theta = \frac{a}{h}$ $\tan\theta = \frac{o}{a}$

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

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

If you are looking for an angle → $\sin^{-1}$ $\cos^{-1}$ $\tan^{-1}$



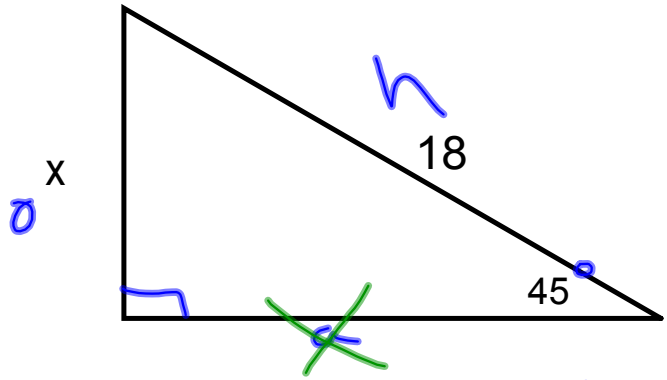
$$a^2 = b^2 + c^2 - 2bc\cos A$$

$$b^2 = c^2 + a^2 - 2ca\cos B$$

$$c^2 = a^2 + b^2 - 2ab\cos C$$

Example: Find X

SOH CAH TOA



① Lable the triangle. h, o, a

② Choose sin, cos, or tan

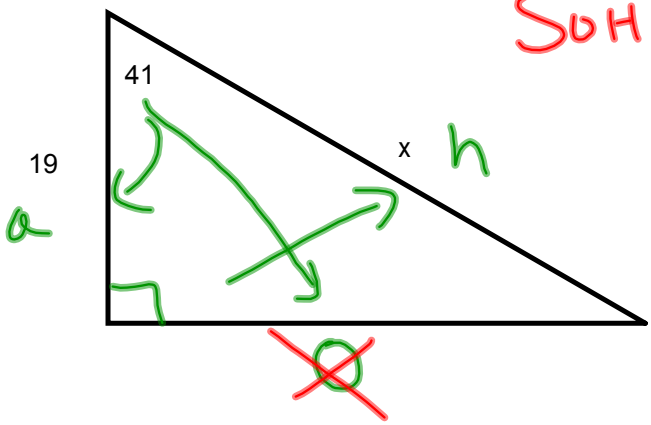
$\sin\theta = \frac{o}{h}$

$\sin 45° = \frac{x}{18}$

$18 \times \sin 45° = x$

$12.7 \doteq x$

SOH CAH TOA



$\cos\theta = \frac{a}{h}$

$\cos 41° = \frac{19}{x}$

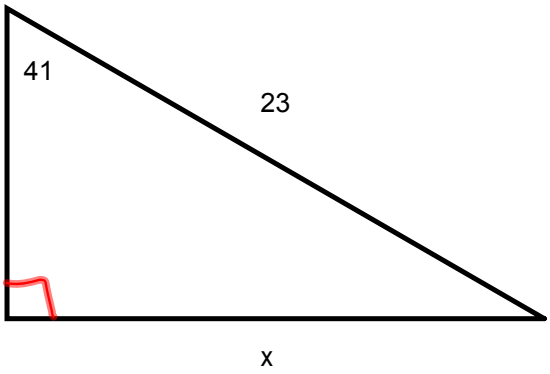
* if the variable is on the bottom then cross multiply

$x \cdot \cos 41° = 19$

$\frac{x \cdot \cos 41°}{\cos 41°} = \frac{19}{\cos 41°}$

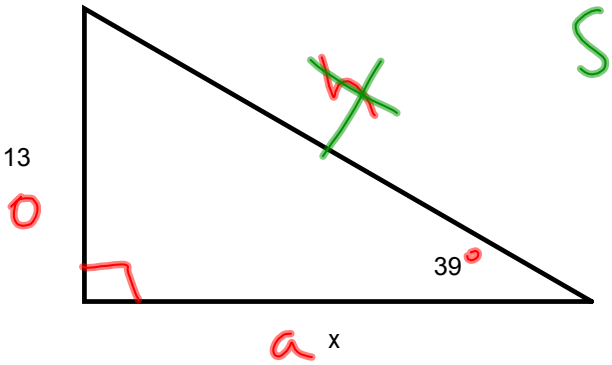
$x = \frac{19}{\cos 41°}$

$x \approx 25.2$


41
23
x

① Label

SOH CAH TOA



$\tan\theta = \frac{O}{A}$

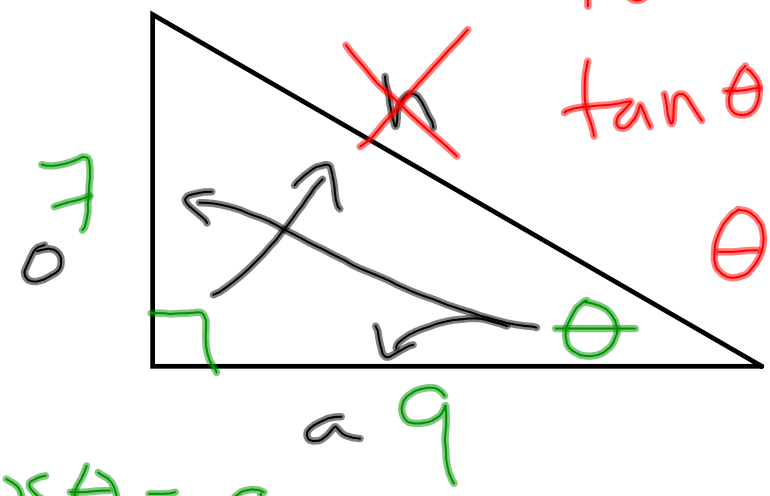
$\tan 39° = \frac{13}{x}$

$x \cdot \tan 39° = 13$

$x = \frac{13}{\tan 39°}$

$= 16.1$

1.



$\tan\theta = \frac{o}{a}$

$\tan\theta = \frac{7}{9}$

$\theta = \tan^{-1}\left(\frac{7}{9}\right)$

$\doteq 38^{\circ}$

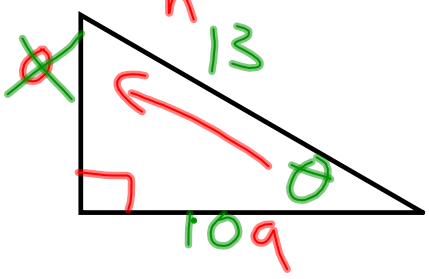
$\cos\theta = \frac{a}{h}$

$\cos\theta = \frac{10}{13}$

$\theta = \cos^{-1}\left(\frac{10}{13}\right)$

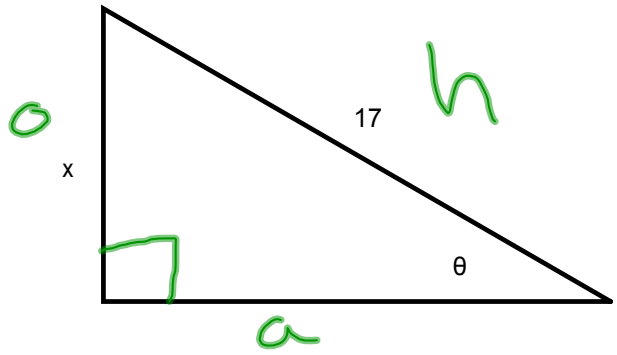
$\doteq 40^{\circ}$

2.



SOH CAH TOA

Find x.



O h

A

$\sin\theta = 0.765$

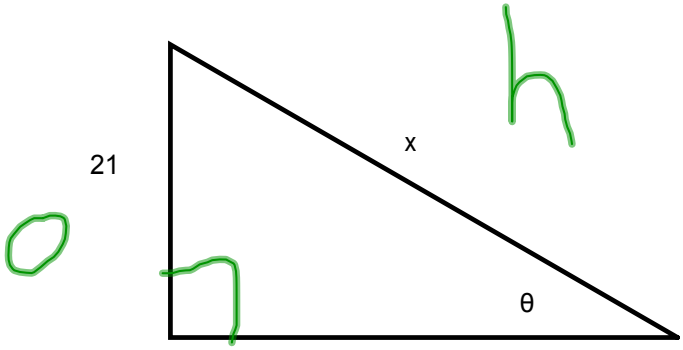
$\sin\theta = \frac{O}{h}$

$\sin\theta = \frac{x}{17}$

$0.765 = \frac{x}{17}$

$17 \times 0.765 = x$

$13.0 = x$



h

o

$\sin\theta = 0.8632$

$\sin\theta = \frac{o}{h}$

$\sin\theta = \frac{21}{x}$

C.M.

$0.8632 = \frac{21}{x}$

$x \cdot 0.8632 = 21$

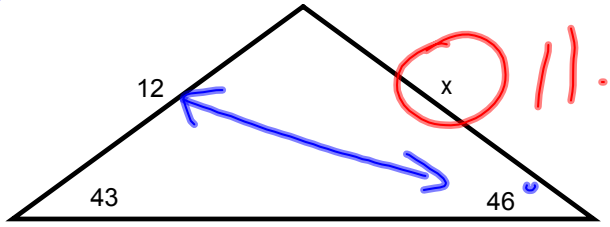
$\frac{0.8632}{0.8632}$

$x = \frac{21}{0.8632}$

$x = 24.3$

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

angle



11.4

side

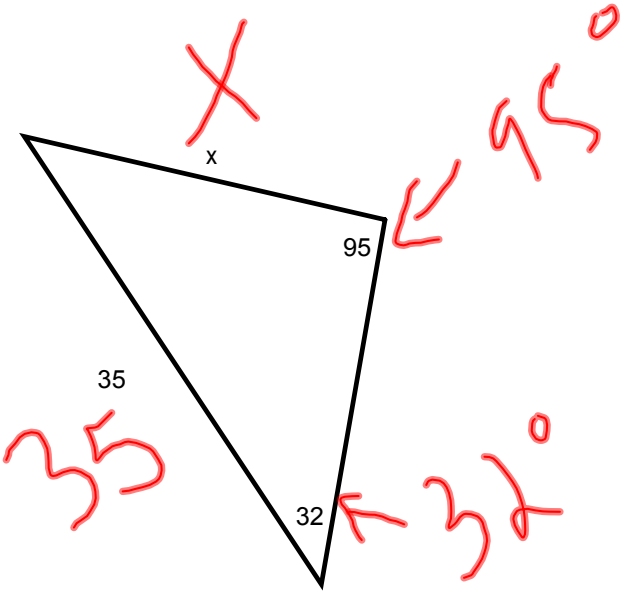
$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{12}{\sin 46^\circ} = \frac{x}{\sin 43^\circ}$$

multiply on L.S.

$$\frac{\sin 43 \times 12}{\sin 46} = x$$

$$11.4 \doteq x$$

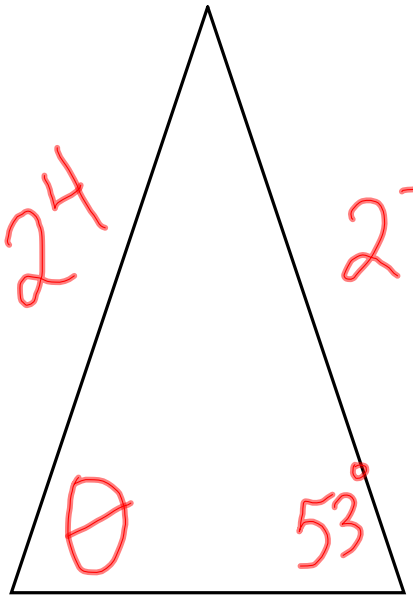


$$\frac{a}{\sin A} = \frac{b}{\sin B}$$

$$\frac{35}{\sin 95^\circ} = \frac{x}{\sin 32^\circ}$$

$$\frac{\sin 32^\circ \times 35}{\sin 95^\circ} = x$$

$$18.6 \approx x$$



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

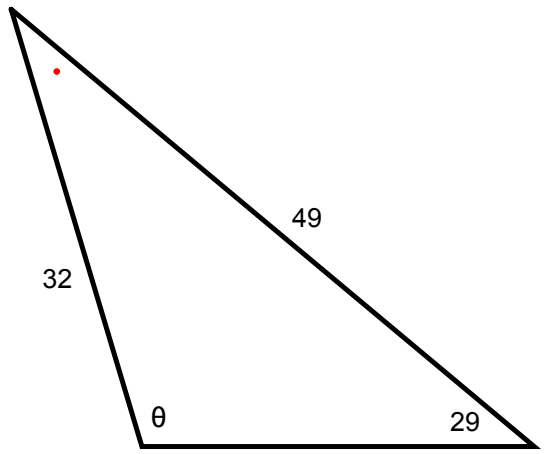
$$\frac{\sin 53^\circ}{24} = \frac{\sin \theta}{27}$$

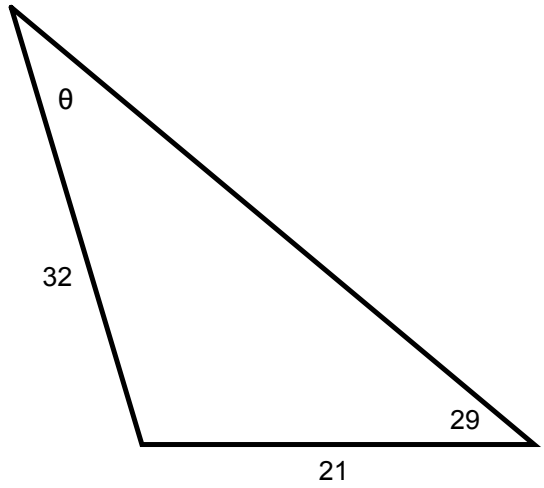
$$\frac{27 \cdot \sin 53^\circ}{24} = \sin \theta$$

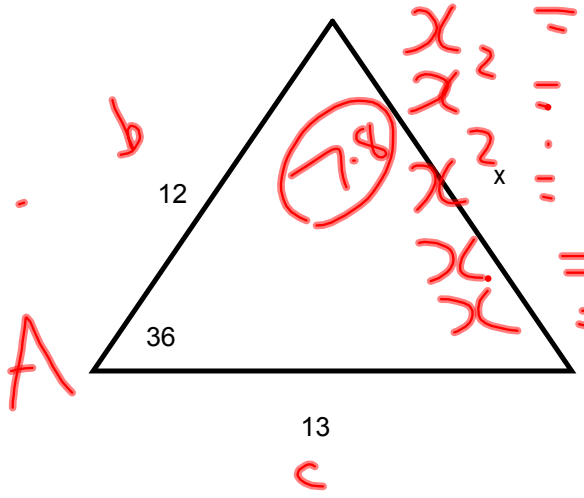
$$0.898 = \sin \theta$$

$$\sin^{-1} 0.898 = \theta$$

$$64^\circ = \theta$$


49
32
θ
29


θ
32
29
21



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

C

$x^2 = 12^2 + 13^2 - 2(12)(13)\cos 36°$

$x^2 = 313 - 312\cos 36°$

$x^2 = 60.6$

$x = \sqrt{60.6}$

$x = 7.8$

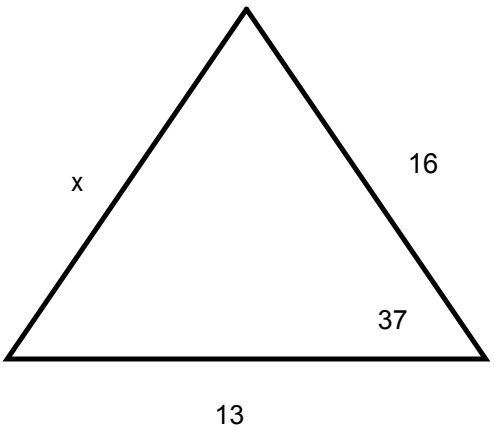
b

7.8

A

B

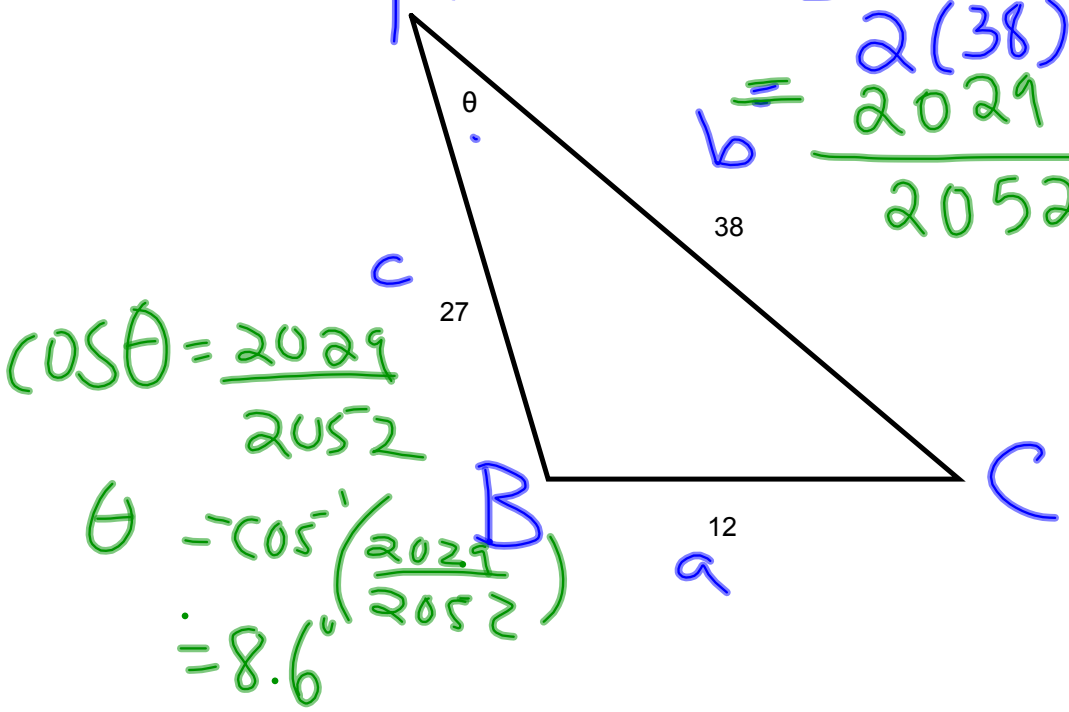
c


x
16
37
13

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

$$\cos\theta = \frac{38^2 + 27^2 - 12^2}{2(38)(27)}$$

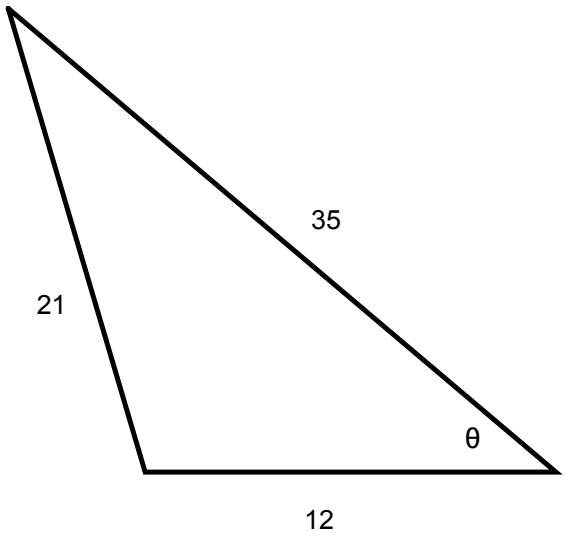
$$b = \frac{2029}{2052}$$



$$\cos\theta = \frac{2029}{2052}$$

$$\theta = \cos^{-1}\left(\frac{2029}{2052}\right)$$

$$= 8.6^\circ$$


35
21
θ
12