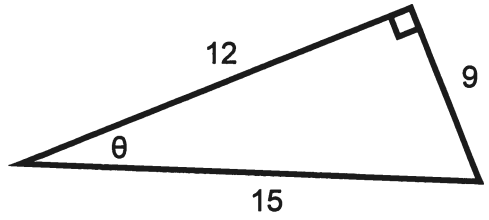
KEY

L02 - Trigonometry (Solving for Angles)

Part 1 - Labelling the Triangle and Determining the Ratios

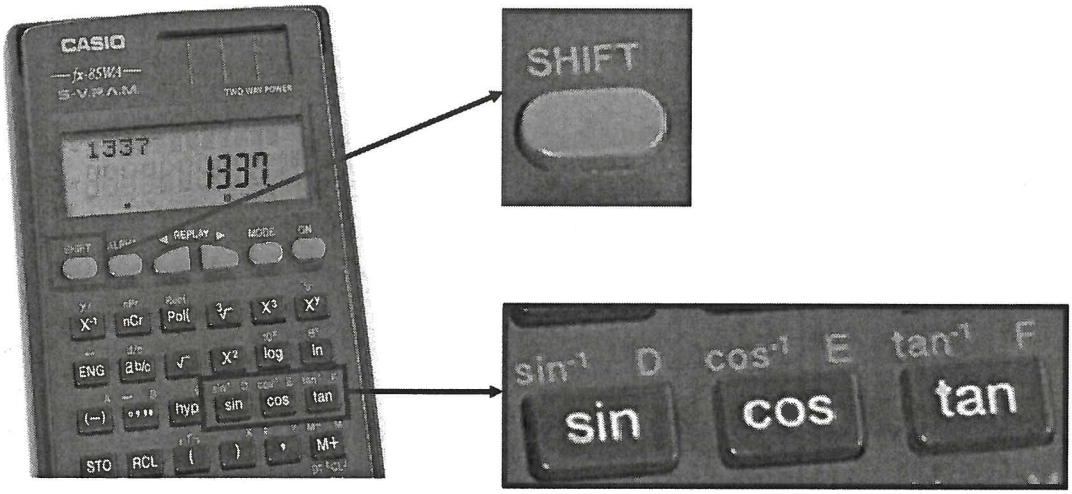
1. Label all sides of the triangle (opp, adj, hyp).
2. Determine each simplified ratio (Sin θ, Cos θ, Tan θ).

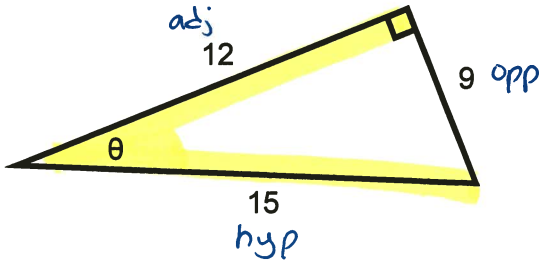


SohCahToa

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

Part 2 - Solving for Angles





SohCahToa

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

$\sin\theta = \frac{o}{h}$
$\sin\theta = \frac{9}{15}$
$\sin\theta = 0.6$
$\theta = \sin^{-1}(0.6)$
$\theta = 36.9°$

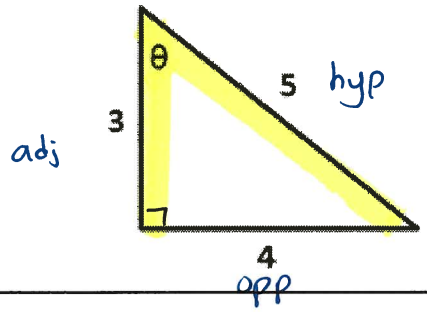
$\cos\theta = \frac{a}{h}$
$\cos\theta = \frac{12}{15}$
$\cos\theta = 0.8$
$\theta = \cos^{-1}(0.8)$
$\theta = 36.9°$

$\tan\theta = \frac{o}{a}$
$\tan\theta = \frac{9}{12}$
$\tan\theta = 0.75$
$\theta = \tan^{-1}(0.75)$
$\theta = 36.9°$

KEY

Use the following information to answer Q1-Q3:

Trig Ratios for a 3-4-5 Triangle



Q1: For the triangle above, the ratio $Sin\ \theta = \frac{a}{b}$ where the integers ***a*** and ***b*** are ___ and ___.

*(Record your **two digit** answer in the Numerical Response boxes below)*

4	5		

$\sin\theta = \frac{o}{h} = \frac{4}{5}$

Q2: What is the value of $Sin\ \theta$?

*(Record your **three digit** answer in the Numerical Response boxes below)*

0	.	8	0

$\sin\theta = \frac{o}{h} = \frac{4}{5} = 0.80$

Q3: What is the value of θ, to the nearest tenth?

(Record your answer in the Numerical Response boxes below)

5	3	.	1

$\sin\theta = 0.80$

$\theta = \sin^{-1}(0.80)$

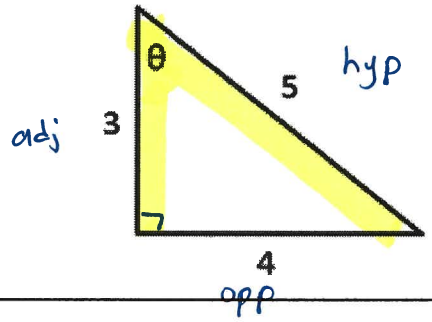
$\theta = 53.1°$

↑ Tenth

KEY

Use the following information to answer Q4-Q6:

Trig Ratios for a 3-4-5 Triangle



Q4: For the triangle above, the ratio $Cos\ \theta = \frac{a}{b}$ where the integers a and b are ___ and ___.

(Record your two digit answer in the Numerical Response boxes below)

3	5		

$Cos\theta = \frac{a}{h} = \frac{3}{5}$

Q5: What is the value of $Cos\ \theta$?

(Record your three digit answer in the Numerical Response boxes below)

0	.	6	0

$Cos\theta = \frac{a}{h} = \frac{3}{5} = 0.60$

Q6: What is the value of θ, to the nearest tenth?

(Record your answer in the Numerical Response boxes below)

5	3	.	1

$Cos\theta = 0.60$

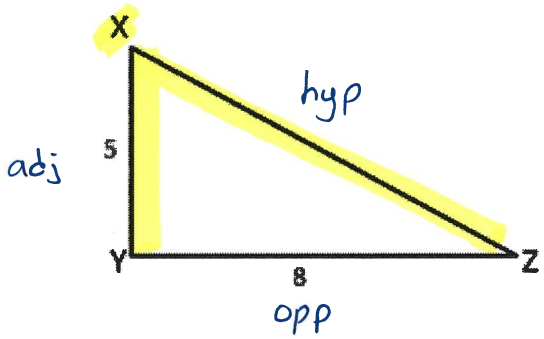
$\theta = Cos^{-1}(0.60)$

$\theta = 53.1$

Tenth

Use the following information to answer Q7-Q8:

Solving for ∠X



Trigonometric Ratio

1 – Sin

2 – Cos

3 – Tan

Q7: To solve the triangle above for ∠X, we will use trigonometric ratio ***a***, where ***a*** identifies the trigonometric ratio using the information given above. The value of this ratio is $\frac{b}{c}$, where ***a***, ***b***, and ***c*** are ___, ___, and ___.

(Record your three digit answer in the Numerical Response boxes below)

3	8	5	

We have opp and adj. SohCahToa

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

$\tan\theta = \frac{8}{5}$

Q8: What is the value of ∠X?

(Record your three digit answer in the Numerical Response boxes below)

5	8	.	0

$\tan\theta = \frac{8}{5}$

$\tan\theta = 1.6$

$\theta = \tan^{-1}(1.6)$

$\theta = 57.9946$

$\theta \approx 58.0$