Curriculum Outcome

A1 Solve problems that require the manipulation and application of formulas related to: perimeter, area, volume, capacity, the Pythagorean theorem, primary trigonometric ratios, income. currency exchange, interest and finance charges.

G2 Demonstrate an understanding of the Pythagorean theorem by: identifying situations that involve right triangles, verifying the formula, applying the formula, solving problems.

G3 Demonstrate an understanding of primary trigonometric ratios (sine, cosine, tangent) by: applying similarity to right triangles, generalizing patterns from similar right triangles, applying the primary trigonometric ratios, and solving problems.

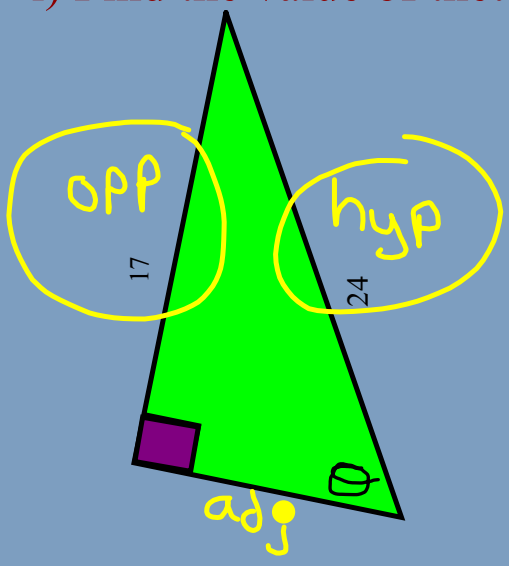
Student Friendly:

Math 10

Trigonometry

Math 10

i) Find the value of theta



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

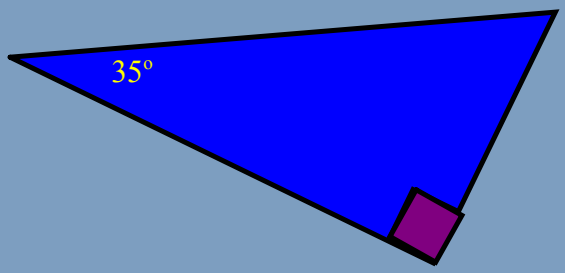
$\sin\theta = \frac{17}{24}$

$\sin\theta = 0.708\overline{3}$

$\theta = \sin^{-1}(0.708\overline{3})$

$\theta = 45.1^\circ$

ii) Find cos of theta

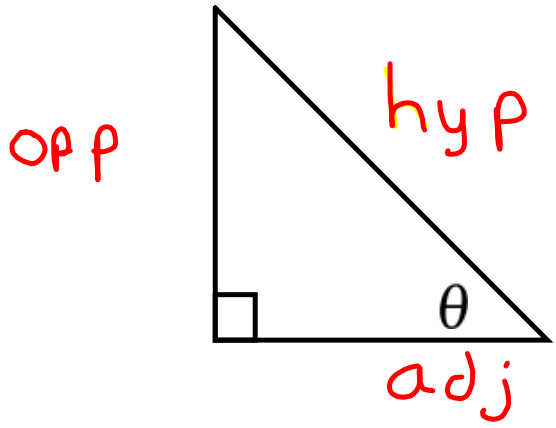


$\cos\theta = ?$

$\cos 35^\circ = 0.8192$

What we already know:

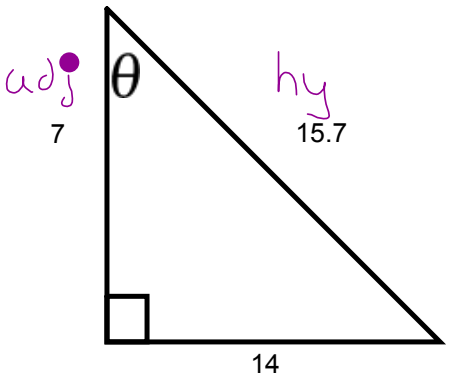
1) How to name our triangle



2) What the Trig ratios are

What we already know:

3) How to find the sine, cosine and tangent according to a specific angle



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

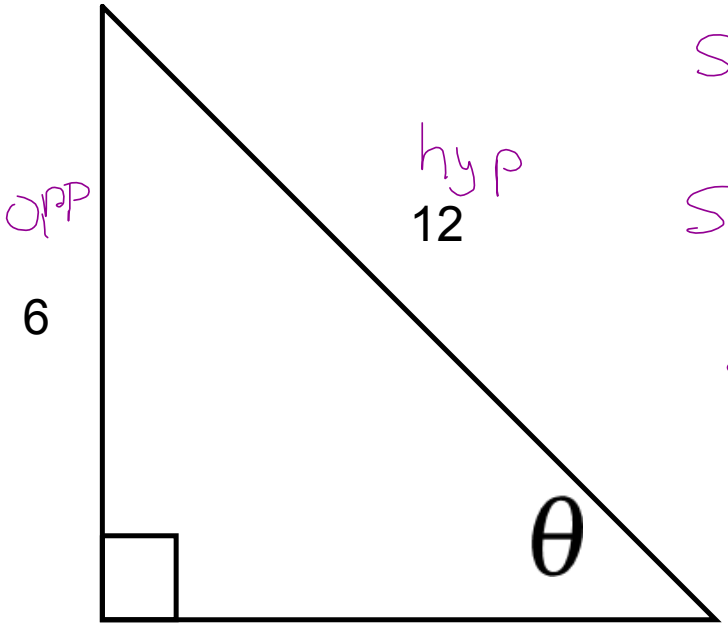
$\sin\theta = \frac{14}{15.7}$ $\cos\theta = \frac{7}{15.7}$ $\tan\theta = \frac{14}{7}$

$\sin\theta = 0.8917$

$\cos\theta = 0.4459$

$\tan\theta = 2$

4) How to find an unknown angle:



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

$\sin\theta = \frac{6}{12}$

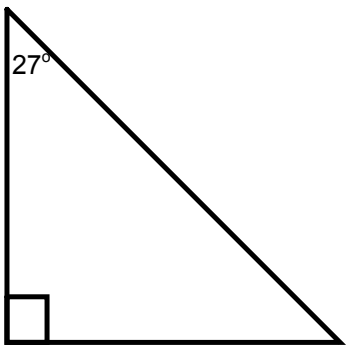
$\sin\theta = 0.5$

$\theta = \sin^{-1}(0.5)$

$\theta = 30^\circ$

What we already know:

5) How to find the sine, cosine & tangent of a given angle

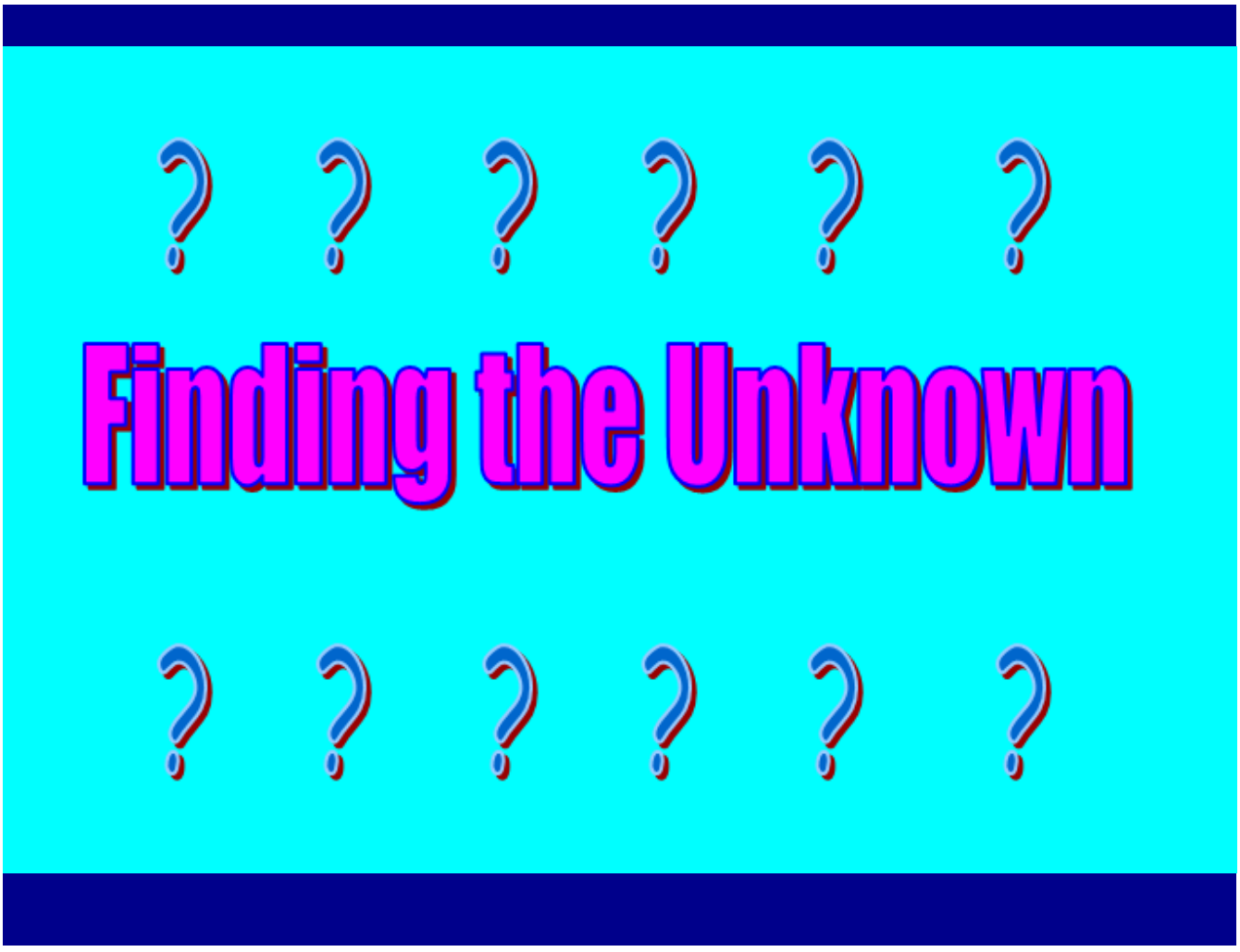


Sin θ Cos θ tan θ

Sin 27 Cos 27 tan 27

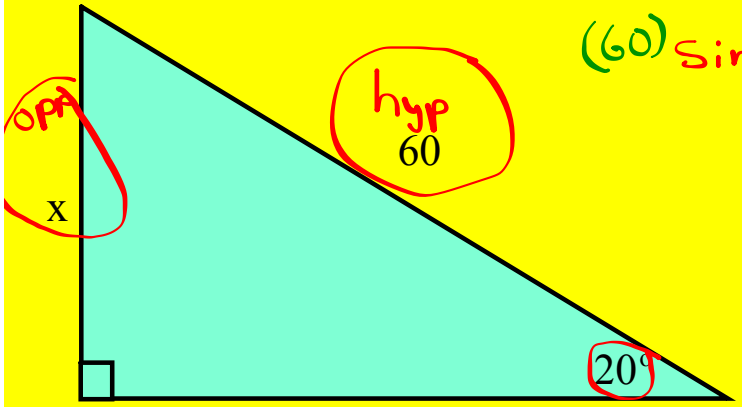
= 0.4539 = 0.8910 = 0.5095

Soh Cah toa


Finding the Unknown

We know how to evaluate sin, cos, and tan using our calculators.
We can use these values to solve right triangle problems

Finding Missing SIDES



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

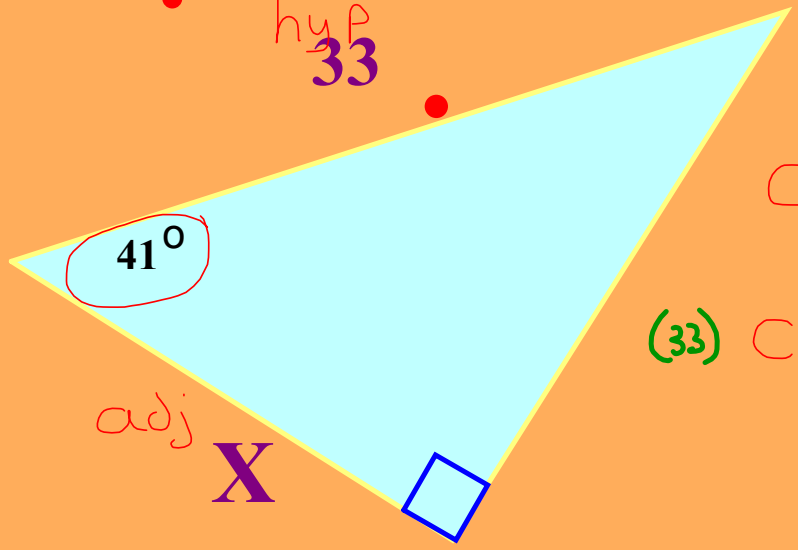
$(60)\sin 20^\circ = \frac{x}{60}(60)$

$x = 60(\sin 20)$

$x = 60(0.3420)$

$x = 20.5$

How do we find the missing side ????



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

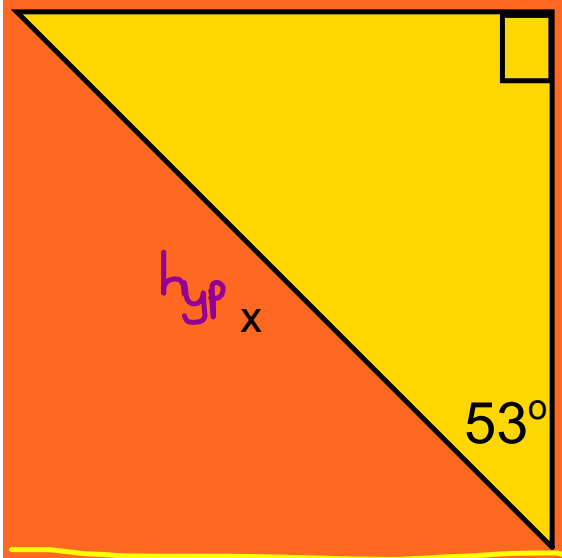
$(33)\ \cos 41° = \frac{x}{33}\ (33)$

$x = 33(\cos 41°)$

$x = 33(0.7547)$

$x = 24.9$

How do we find the missing side ????



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

$\sin 53^\circ = \frac{12}{x}$

$x = \frac{12}{\sin 53^\circ}$

$x = \frac{12}{0.7986}$

$x = 15$

(x)

$\sin 53 = \frac{12}{x}$ (x)

$\frac{x(\sin 53^\circ)}{\sin 53^\circ} = \frac{12}{\sin 53^\circ}$

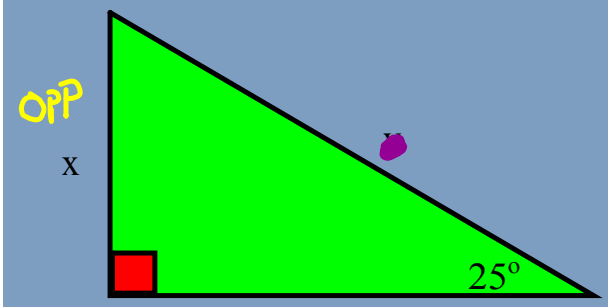
$x = \frac{12}{\sin 53^\circ}$

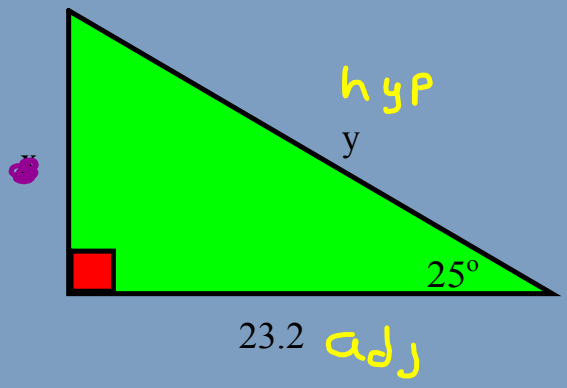
$$3(x) = \frac{15}{x}(x)$$

$$\frac{3x}{3} = \frac{15}{3}$$

$$x = \frac{15}{3}$$

Exercise: Find the missing information





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

$\tan 25° = \frac{x}{23.2}$

$x = 23.2(\tan 25)$

$x = 10.8$

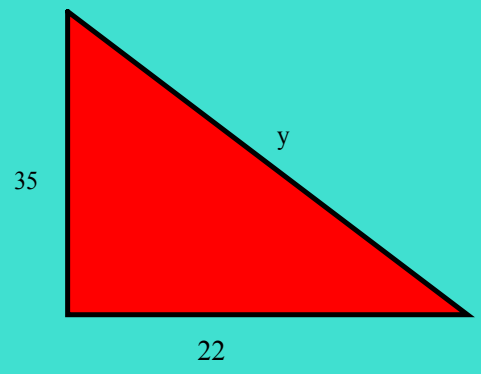
$\cos 25 = \frac{23.2}{x}$

$x = \frac{23.2}{\cos 25}$

$x = \frac{23.2}{0.9063}$

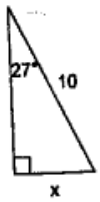
$x = 25.6$

Using only Trig Ratios find the missing information.

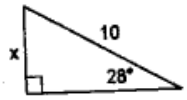


Find the missing side. Round to the nearest tenth.

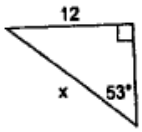
1)



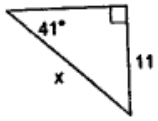
2)



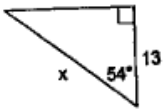
3)



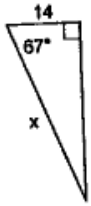
4)



5)



6)



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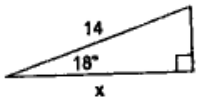

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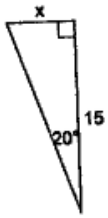
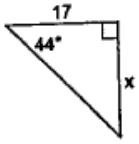
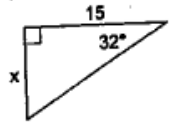


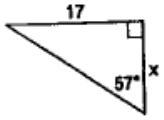
9)



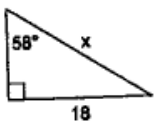
10)



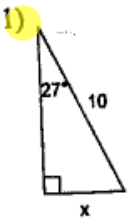
11)



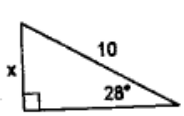
12)



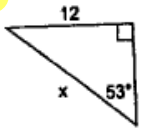
Find the missing side. Round to the nearest tenth.

1) 

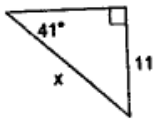
x = 4.5

2) 

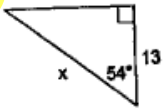
x = 4.7

3) 

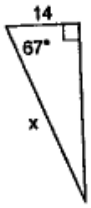
x = 15.0

4) 

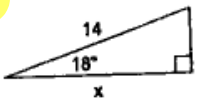
x = 16.8

5) 

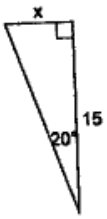
x = 22.1

6) 

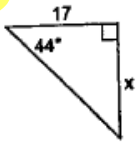
x = 35.8

7) 

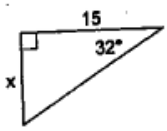
x = 13.3

8) 

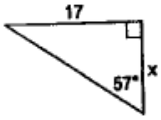
x = 5.5

9) 

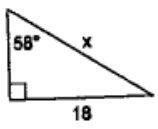
x = 16.4

10) 

x = 9.4

11) 

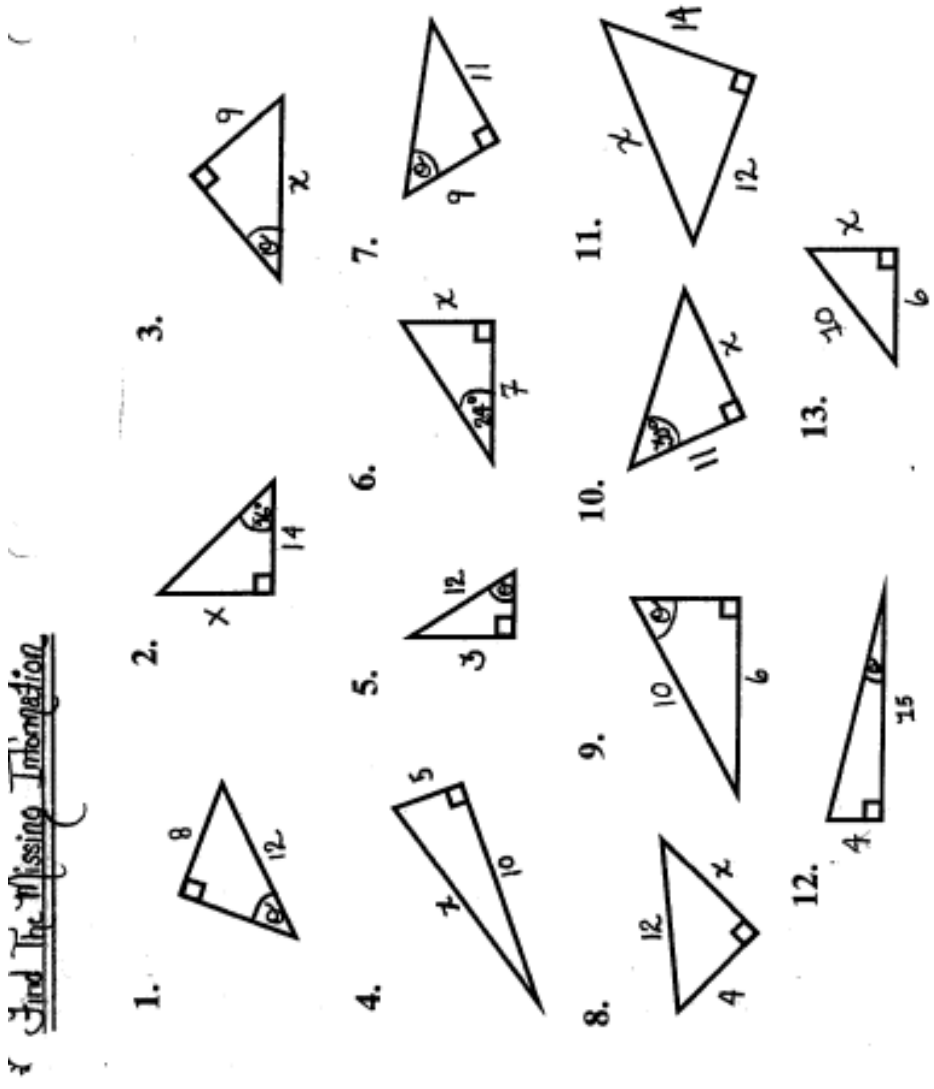
x = 11

12) 

x = 21.2

Homework

Worksheet 5-find the indicated side or angle



Attachments

TrigTable WS 2.docx

TrigTheta WS 5.docx

TrigTheta WS 3.docx