What's Going On?

Checking In	Test Next Tuesday
Minds on	sohcahtoa?
Action!	Sine Law!
Consolidation	Mr. Two Steppa'

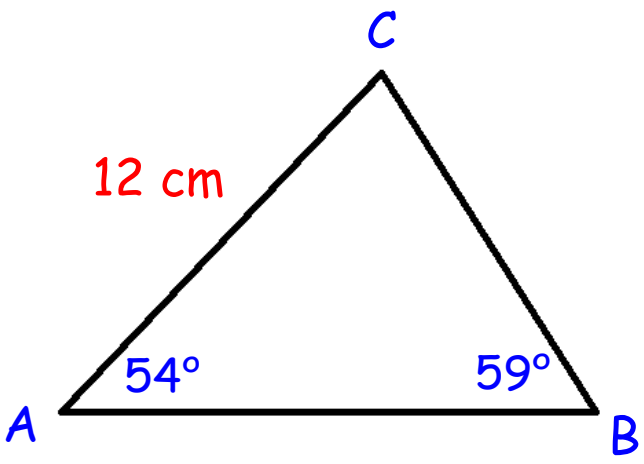
Learning Goal - I will be able to use The Sine Law to solve for sides and angles in NON-right triangles!

Checking In

UNIT TEST NEXT TUESDAY

Minds on

sohcahtoa?



This is NOT a right triangle!

We can't use sohcahtoa!

Find the measure of side a.

Action!

The Sine Law

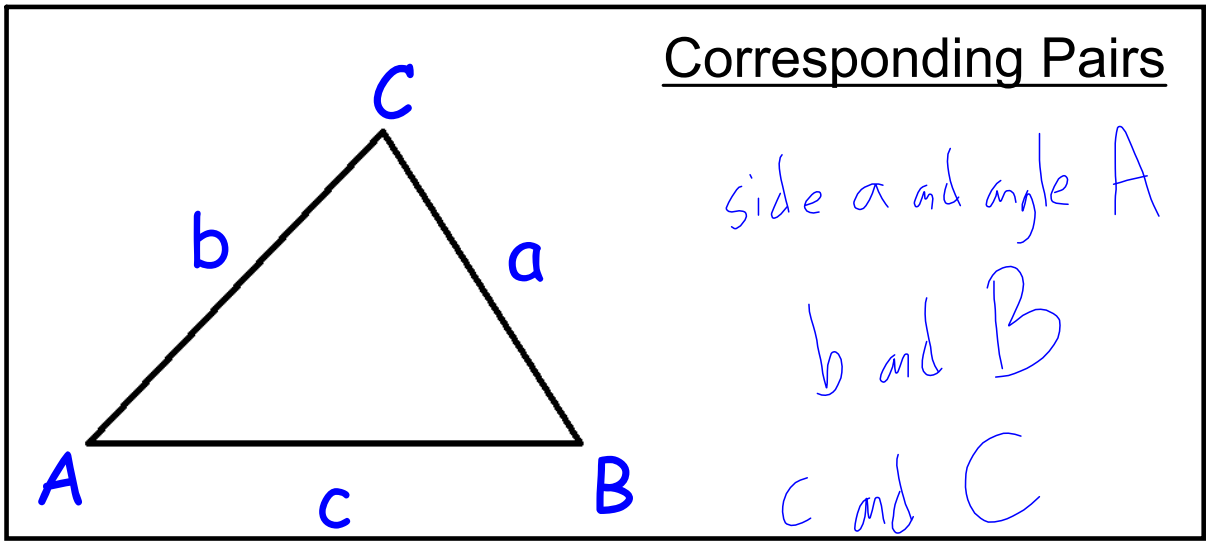
side

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

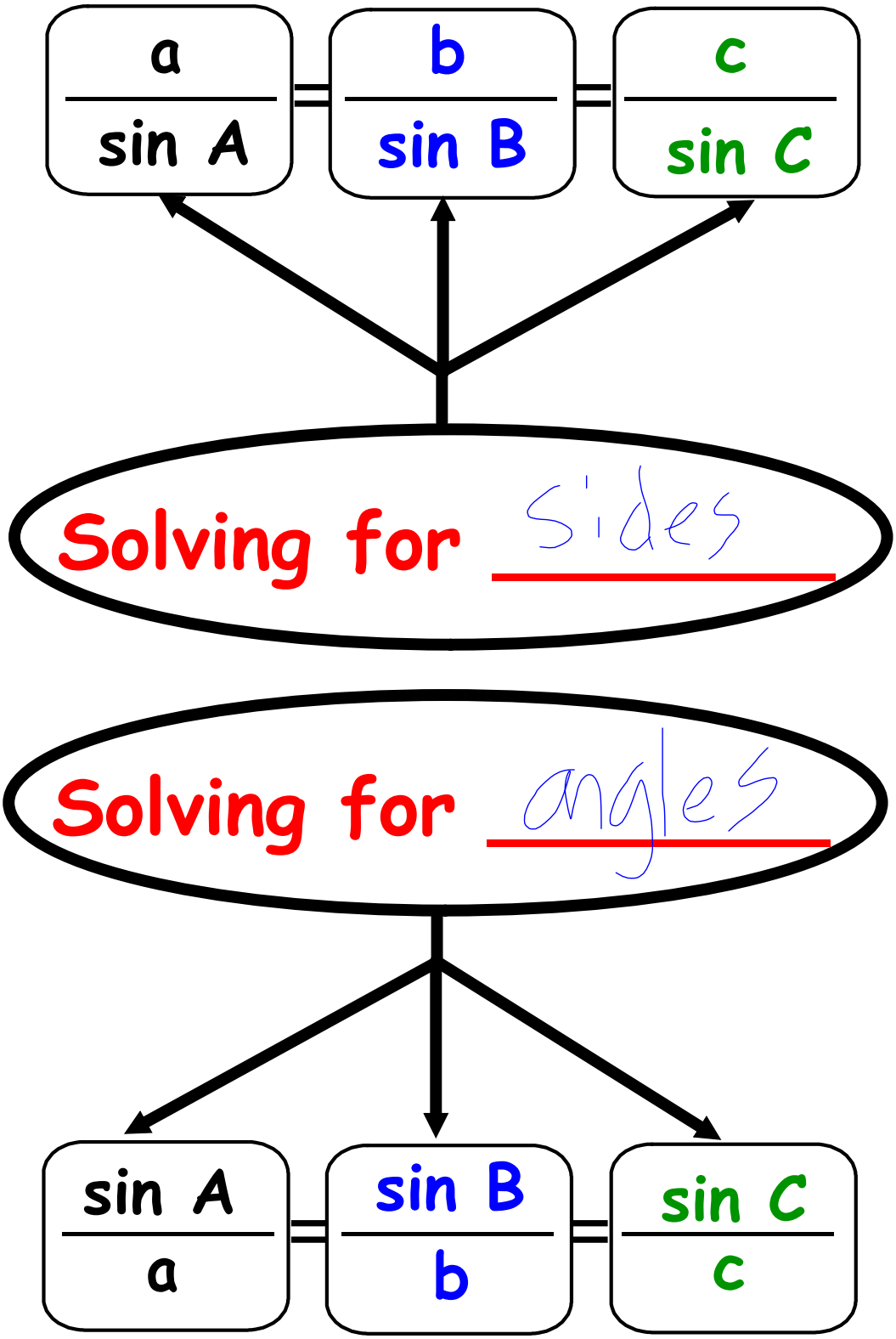
angle

The Sine Law is used to solve for sides and angles of non-right triangles.

NOTE: We can only use The Sine Law if we have a corresponding side and angle.



The Sine Law


a / sin A = b / sin B = c / sin C
Solving for sides
Solving for angles
sin A / a = sin B / b = sin C / c

How to use The Sine Law

1. Make sure you are dealing with a non-right triangle.

2. Determine if you are solving for a side or an angle.

3. Write out The Sine Law for sides

or The Sine Law for angles!

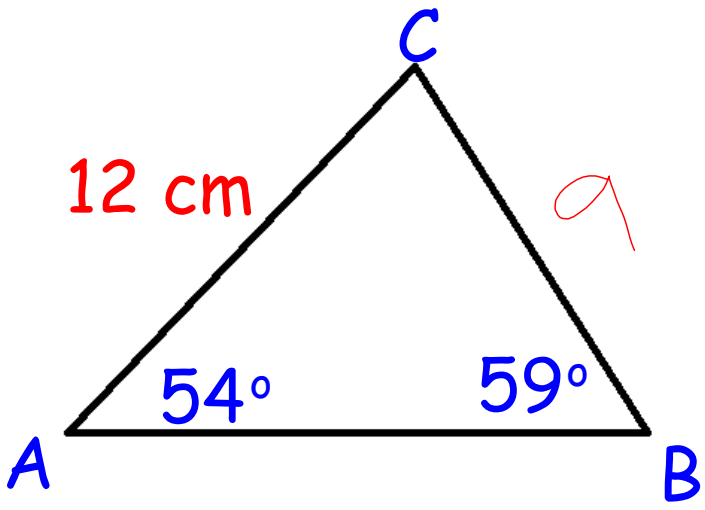
4. Plug in everything you know.

5. Get rid of the ratio you don't need.

6. Use cross multiplication

and your calculator to solve for your side

or angle.



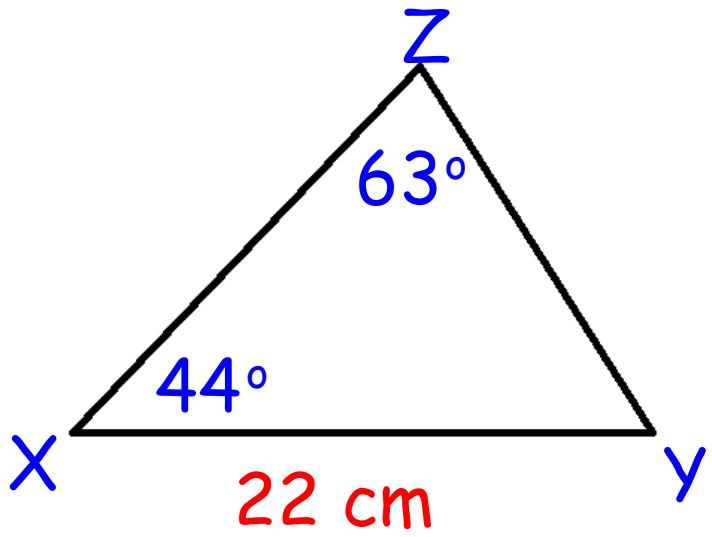
Find the measure of side a.

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

$$\frac{\sin 54^\circ \times a}{\sin 54^\circ} = \frac{12 \times \sin 54^\circ}{\sin 59}$$

$$a = \frac{12 \times \sin 54}{\sin 59}$$

$$a = 11.3$$



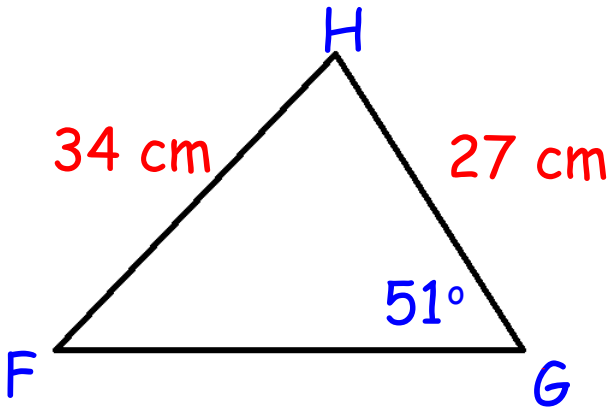
Find the measure of side x.

$$\frac{x}{\sin X} = \frac{y}{\sin Y} = \frac{z}{\sin Z}$$

$$\frac{x}{\sin 44^\circ} = \frac{22}{\sin 63^\circ}$$

$$x = \frac{22 \times \sin 44^\circ}{\sin 63^\circ}$$

$$x = 17.2 \text{ cm}$$



Find the measure of angle F.

$$\frac{\sin F}{f} = \frac{\sin G}{g} = \frac{\sin H}{h}$$

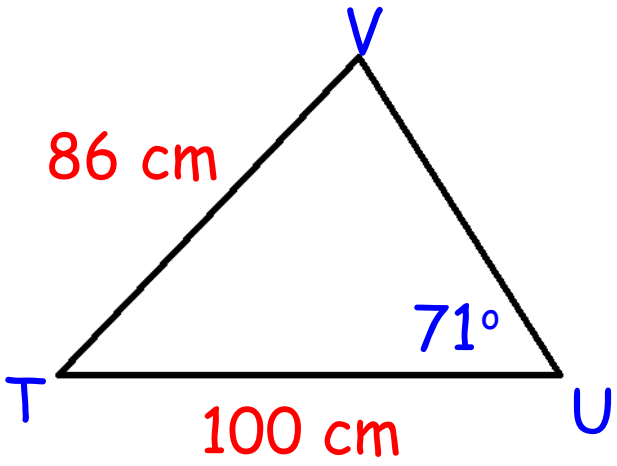
$$\frac{\sin F}{27} = \frac{\sin 51^\circ}{34}$$

$$\sin F = \frac{27 \times \sin 51^\circ}{34}$$

$$\sin F = 0.6171$$

$$F = \sin^{-1} 0.6171$$

$$F = 39^\circ$$



Find the measure of angle V.

$$\frac{\sin U}{U} = \frac{\sin T}{T} = \frac{\sin V}{V}$$

$$100 \times \frac{\sin 71}{96} = \frac{\sin V}{100} \times 100$$

$$\sin V = \frac{100 \times \sin 71^\circ}{96}$$

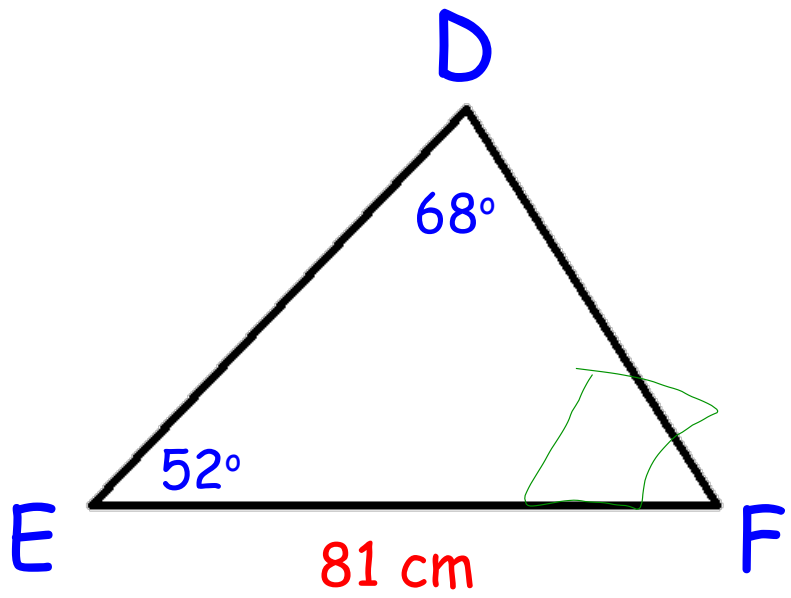
$$\sin V = 1.0994$$

"ERROR"

Impossible!!!

Consolidation

Mr. Two Steppa



Find the measure of side f.

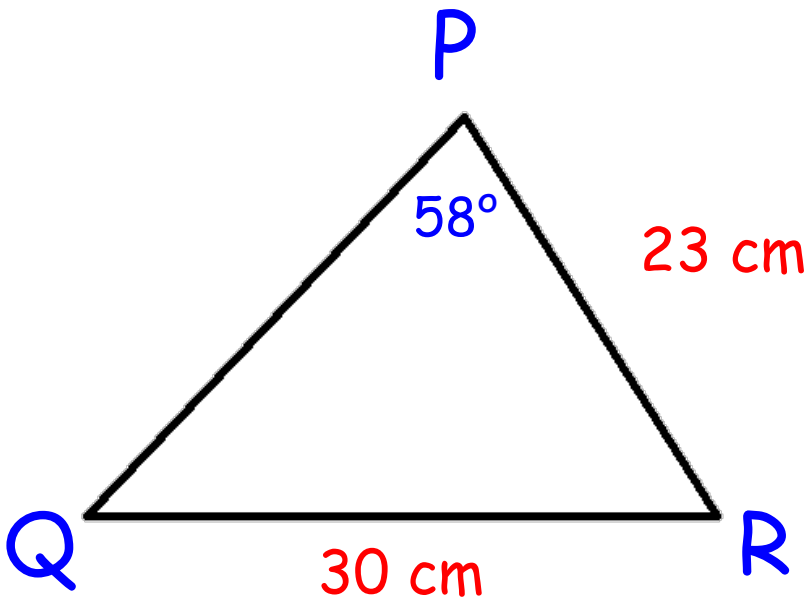
$$\frac{e}{\sin E} = \frac{f}{\sin F} = \frac{d}{\sin D}$$

$$\frac{e}{\sin 52} = \frac{f}{\sin F} = \frac{81}{\sin 64}$$

* first find ∠F by subtracting from 180°

Consolidation

Mr. Two Steppa



Find the measure of angle R.

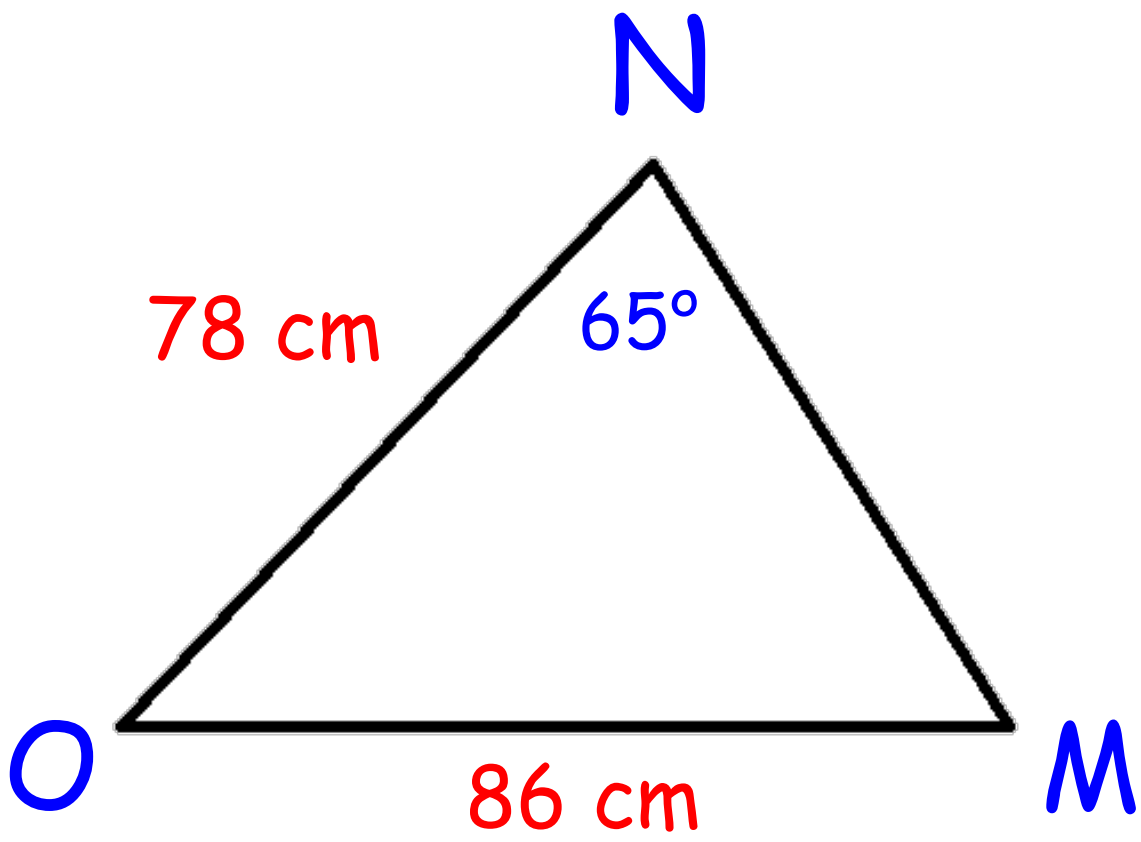
$$\frac{\sin P}{p} = \frac{\sin Q}{q} = \frac{\sin R}{r}$$

$$\frac{\sin 58^\circ}{30} = \frac{\sin Q}{23} = \frac{\sin R}{r}$$

* first find Q
then find R!!

Consolidation

Mr. Two Steppa



Find the measure of side o.

First find angle M using Sine Law

Then find Angle O by subtracting from 180

Finally, find Side o using Sine Law again!