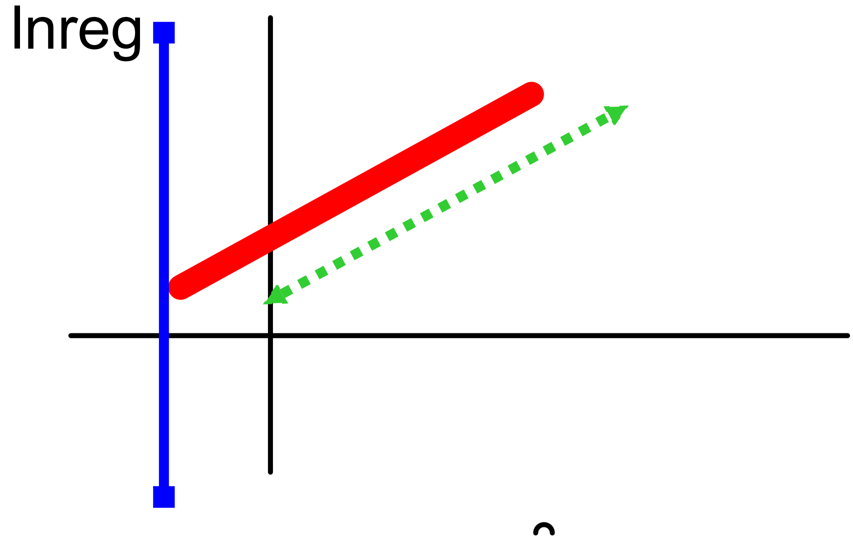
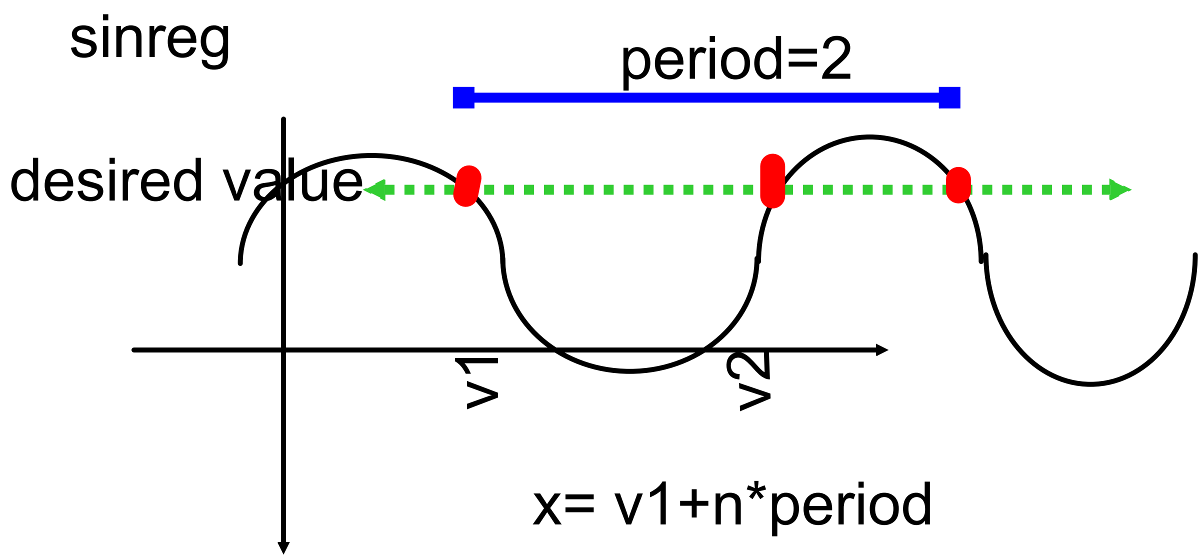


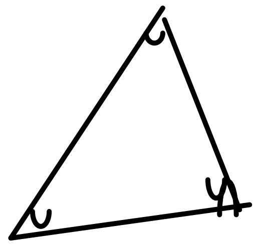


x= v1+n*period

x=v2+n*2

Law of Sines and Cosines

used for Triangles that are not right triangles.

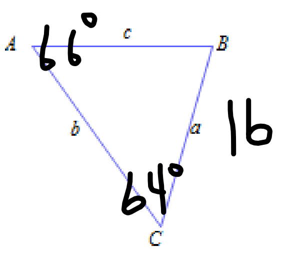


Solving a triangle with the law of sines: Problem type 1

Consider a triangle ABC like the one below. Suppose that $A = 66°$, $C = 64°$, and $a = 16$. (The figure is not drawn to scale.) Solve the triangle.

Round your answers to the nearest tenth.
If there is more than one solution, use the "or" button.

A A S



law of sines

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

(a = 16, A = 66°, C = 64°)

$$\frac{16}{\sin 66} = \frac{c}{\sin 64}$$

$$c = \frac{16 \sin 66}{\sin 64}$$

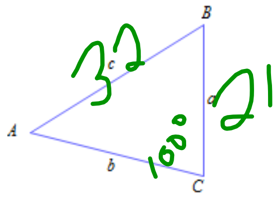
Solving a triangle with the law of sines: Problem type 2

Consider a triangle ABC like the one below. Suppose that $c = 32$, $a = 21$, and $C = 100°$. (The figure is not drawn to scale.) Solve the triangle.

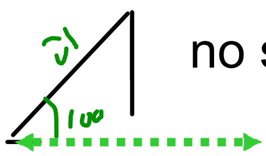
S S A

Carry your intermediate computations to at least four decimal places, and round your answers to the nearest tenth.

If no such triangle exists, enter "No solution." If there is more than one solution, use the "or" button.



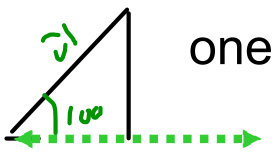
ASS



no solutions

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

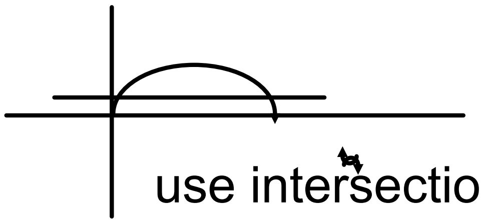
ASS



one solutions

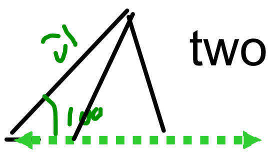
sinA=21sin(100)/32

A= sin^{-1}()

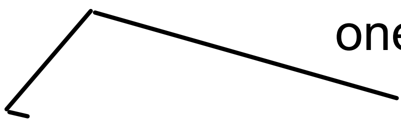


use intersection method to find BOTH angles

ASS



two solutions



one solution

What about SSS?

use LAW of Cosines

Law of Cosines:

Suppose a triangle has angles A, B, and C with opposite sides of a, b, and c, respectively.

Then, the law of cosines says the following.

$$a^2 = b^2 + c^2 - 2bc\cos A$$
$$b^2 = a^2 + c^2 - 2ac\cos B$$
$$c^2 = a^2 + b^2 - 2ab\cos C$$

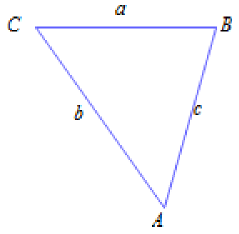
SAS

Solving a triangle with the law of cosines

Consider a triangle ABC like the one below. Suppose that $a = 20$, $b = 12$, and $c = 18$. (The figure is not drawn to scale.) Solve the triangle.

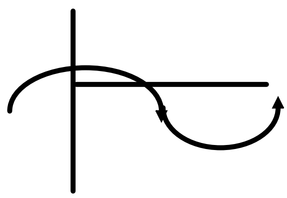
Carry your intermediate computations to at least four decimal places, and round your answers to the nearest tenth.

If there is more than one solution, use the "or" button.



$$20^2=12^2+18^2-2(12)(18)\cos A$$

$$\cos A= \frac{20^2-12^2-18^2}{-2(12)(18)}$$



$$A= \cos^{-1}\left(\frac{20^2-12^2-18^2}{-2(12)(18)}\right) \approx 80.94\text{degree}$$

$$B=\cos^{-1} \frac{12^2 -20^2 -18^2}{-2(12)(18)}$$

$$C=180 - A - B$$