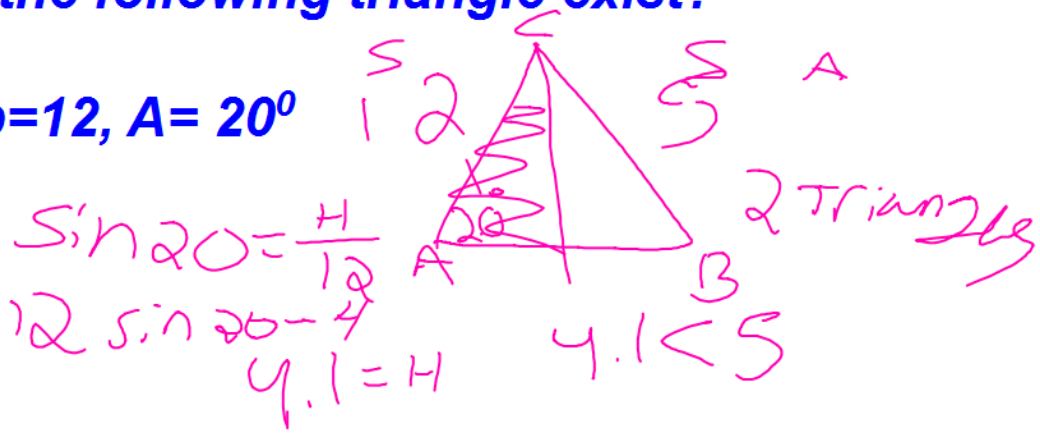
Bellwork Wednesday 04/18

Does the following triangle exist?

a=5, b=12, A= 20⁰

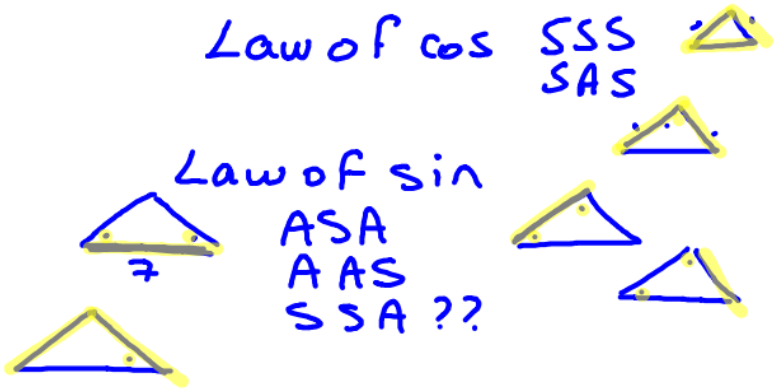


Solve the SSA triangle. Indicate whether the given measurements result in no triangle, one triangle, or two triangles. Solve the resulting triangle. Round the answer to the nearest tenth.

1) B = 22°, b = 16.8, a = 22.42

2) B = 96°, b = 3, a = 24

3) a = 7, b = 9, B = 49°

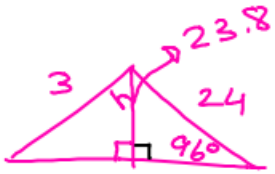


AAA cannot be solved.

Solve the SSA triangle. Indicate whether the given measurements result in no triangle, one triangle, or two triangles. Solve the resulting triangle. Round the answer to the nearest tenth.

1) B = 22°, b = 16.8, a = 22.42

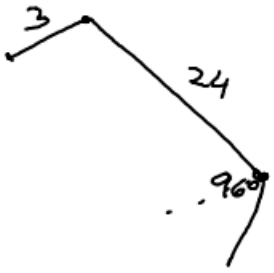
2) B = 96°, b = 3, a = 24



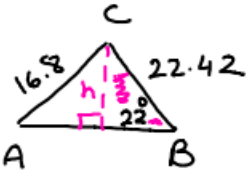
always compare h to the side facing the given angle

h = 23.8 } h > 3
a = 3 } No triangle.

3) ~~a = 7, b = 9, B = 40°~~



1)



SSA ? → law of sine

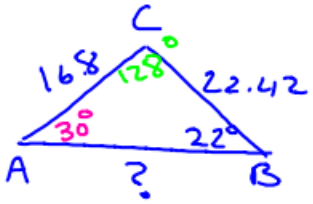
$\sin 22° = \frac{h}{22.42}$

$h = 22.42 \sin 22°$

$h = 8.4$

$h < 16.8$ ✓

2 triangles

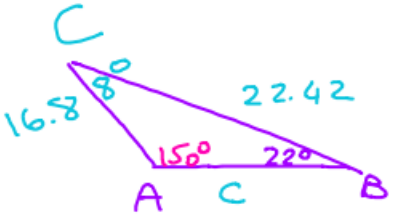


$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

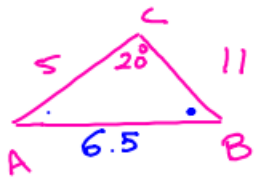
$\frac{\sin A}{22.42} = \frac{\sin 22}{16.8}$

$A = 30°$

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



Ex1



when using law of sin, always start with the angle facing the smaller side.

SAS → law of cosine.

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

$c \simeq 6.5$

$C \simeq 20°$

$B \simeq 15°$

$A \simeq 145°$

Law of sine

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

Incorrect answer

$$\frac{\sin A}{a} = \frac{\sin C}{c} \rightarrow A = 34°$$ ✗ incorrect.