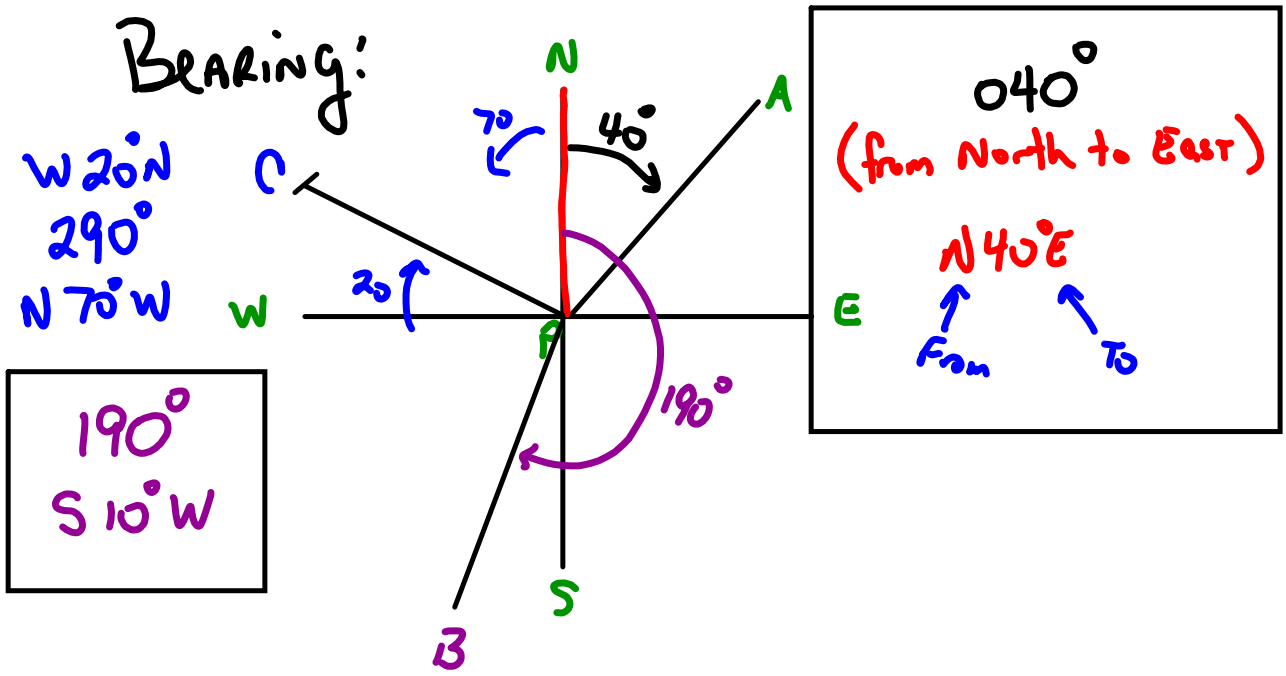
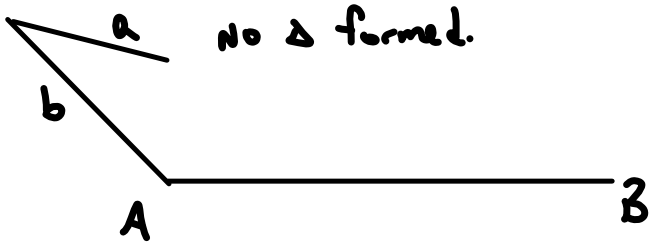
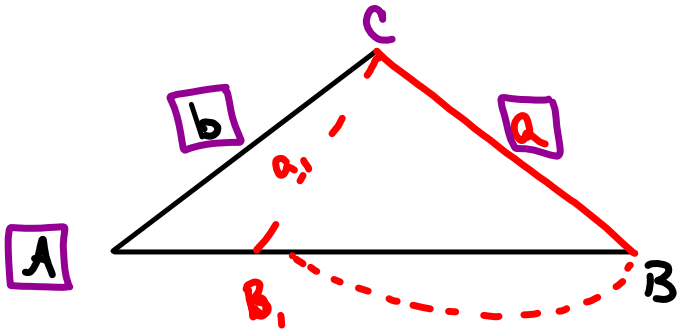
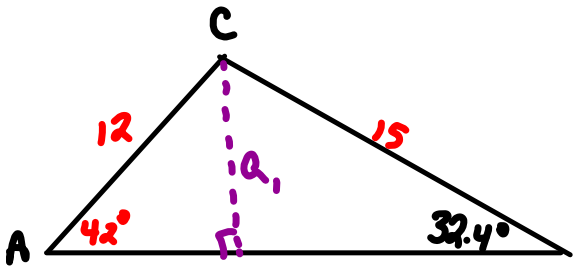

Bearing:
N
A
C
70°
40°
W 20° N
290°
N 70° W
W
20°
E
P
190°
S 10° W
190°
B
S
040°
(from North to East)
N 40° E
From
To

Ambiguous CASE "SSA"







$\sin 42^\circ = \frac{a_1}{12}$

$a_1 = 8.03$

One Triangle
if $a >$ altitude
and
$a > b$

Two Triangles
if $a >$ alt
but $a < b$

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

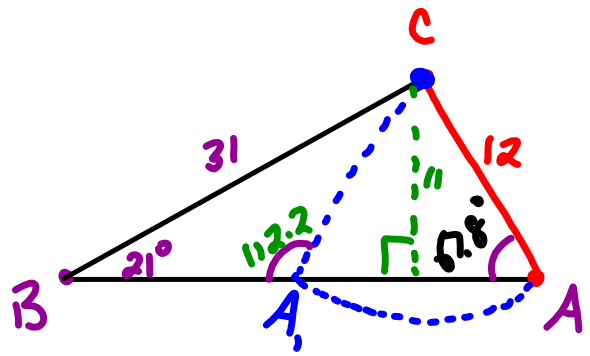
$$\frac{\sin 42}{16} = \frac{\sin B}{12}$$

$$\sin B = \frac{12 \cdot \sin 42}{15}$$

$$B = \sin^{-1}(.5353)$$

$$B = 32.4^\circ$$

CASE #1



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

$$\frac{\sin 21}{12} = \frac{\sin A}{31}$$

$$\sin A = \frac{31 \cdot \sin 21}{12}$$

$$A = \sin^{-1}(0.9258)$$

$$\boxed{A = 67.8^\circ}$$

$$m\angle C = 180 - 88.8$$

$$\boxed{m\angle C = 91.2^\circ}$$

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

$$\frac{\sin 91.2}{c} = \frac{\sin 21}{12}$$

$$c = \frac{12 \cdot \sin 91.2}{\sin 21}$$

$$\boxed{c = 33.5}$$

Case #2

$$\angle A = 180 - 67.8$$

$$\boxed{m\angle A = 112.2^\circ}$$

$$m\angle C = 180 - 133.2$$

$$\boxed{m\angle C = 46.8^\circ}$$

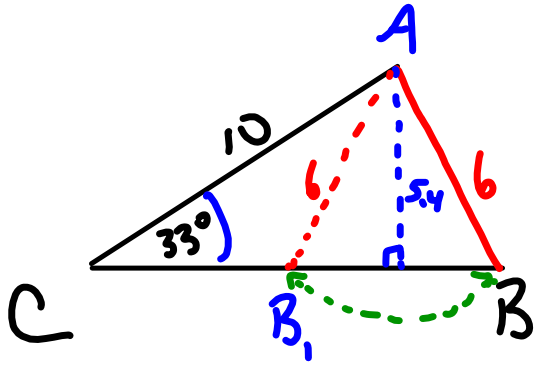
$$\frac{\sin 46.8}{c} = \frac{\sin 21}{12}$$

$$c = \frac{12 \cdot \sin 46.8}{\sin 21}$$

$$\boxed{c = 24.4}$$

Given:

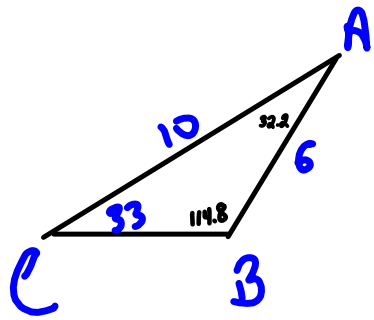
$m\angle C = 33^\circ$, $c = 6$, $b = 10$

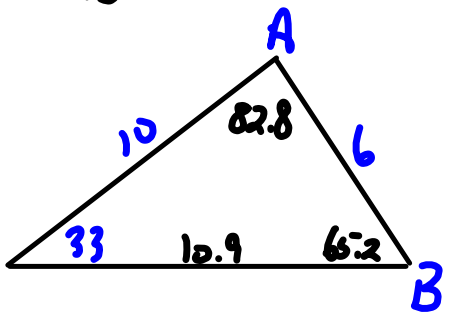


$6 > 5.4$ but

$6 < 10$

$\therefore$ Ambiguous.





CASE #2

$m\angle A = 180 - (33 + 114.8)$

$m\angle A = 32.2$

$$\frac{\sin 32.2}{a} = \frac{\sin 33}{6}$$

$a \cdot \sin 33 = 6 \cdot \sin 32.2$

$$a = \frac{6 \cdot \sin 32.2}{\sin 33}$$

$\boxed{a = 5.9}$

CASE #1

$$\frac{\sin 33}{6} = \frac{\sin B}{10}$$

$6 \cdot \sin B = 10 \cdot \sin 33$

$$\sin B = \frac{10 \cdot \sin 33}{6}$$

$\sin B = 0.9077$

$B = \sin^{-1}(0.9077)$

$\boxed{B = 65.2^\circ}$

$m\angle A = 180 - (65.2 + 33)$

$\boxed{m\angle A = 82.8^\circ}$

$$\frac{\sin 82.8}{a} = \frac{\sin 33}{6}$$

$a \cdot \sin 33 = 6 \cdot \sin 82.8$

$$a = \frac{6 \cdot \sin 82.8}{\sin 33}$$

$\boxed{a = 10.9}$