5.6 Day 1 HW

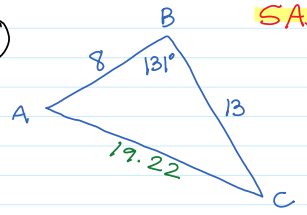
Friday, October 31, 2014 10:19 AM

p. 448: 1, 3, 6, 9, 35, 38

① $b = 19.22$, $C = 18.31°$, $A = 30.69°$ ③ $B = 43.25°$, $C = 59.94°$, $A = 76.81°$ ⑥ $b = 29.52$, $C = 21.66°$, $A = 123.34°$ ⑨ no △ ㉟ 130.42 ft ㊳ 841.22 ft

Solutions

① SAS → Law of Cosines

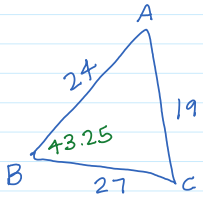


$b^2 = a^2 + c^2 - 2ac\cos B$
$b^2 = 13^2 + 8^2 - 2(13)(8)\cos 131$
$b^2 = 369.46$
$b = 19.22$

$\frac{\sin C}{8} = \frac{\sin 131}{19.22}$
$\sin C = .31$
$C = 18.31°$

$A = 180 - (131 + 18.31)$
$A = 30.69°$

③ SSS → Law of Cosines

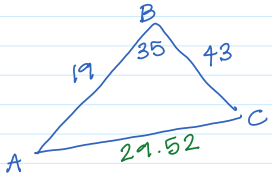


$b^2 = a^2 + c^2 - 2ac\cos B$
$19^2 = 27^2 + 24^2 - 2(27)(24)\cos B$
$361 = 1305 - 1296\cos B$
$-944 = -1296\cos B$
$.73 = \cos B$
$43.25° = B$

$\frac{\sin C}{24} = \frac{\sin 43.25}{19}$
$\sin C = .87$
$C = 59.94°$

$A = 180 - (59.94 + 43.25)$
$A = 76.81°$

⑥



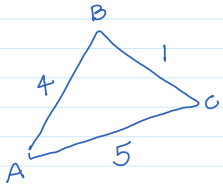
SAS ⇒ Law of Cosines!

$b^2 = a^2 + c^2 - 2ac\cos B$
$b^2 = 43^2 + 19^2 - 2(43)(19)\cos 35$
$b^2 = 871.51$
$b = 29.52$

$\frac{\sin C}{19} = \frac{\sin 35}{29.52}$
$\sin C = .37$
$C = 21.66°$

$A = 180 - (35 + 21.66)$
$A = 123.34°$

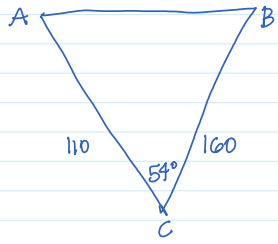
⑨



SAS ⇒ Law of Cosines

$a^2 = b^2 + c^2 - 2bc\cos A$
$1^2 = 5^2 + 4^2 - 2(5)(4)\cos A$
$-40 = -40\cos A$
$1 = \cos A$
$0° = A \Rightarrow$ no triangle

㉟



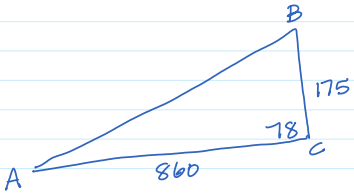
SAS ⇒ Law of Cosines

$c^2 = a^2 + b^2 - 2ab\cos C$
$c^2 = 160^2 + 110^2 - 2(160)(110)\cos 54$
$c^2 = 17009.96$
$c = 130.42$ ft

㊳

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

(38)



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

$c^2 = 175^2 + 860^2 - 2(175)(860)\cos 78$

$c^2 = 707643.58$

$c = 841.22 ft$