Law of Cosines

HW: pg 510 #21-35 (o)

HW Q's? Pg 503: #25-43 (o)

$m\angle A$	20	20
$m\angle B$	___	___
$m\angle C$	65	115

2 Δ's

$m\angle A$	80	80
$m\angle B$	___	___
$m\angle C$	65	115

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

$$a^2 = b^2 + c^2 - 2bc\cos A$$

$$b^2 = a^2 + c^2 - 2ac\cos B$$

USE FOR

SSS

SAS

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

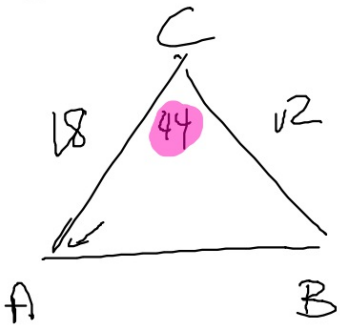
$$c^2 - a^2 - b^2 = -2ab\cos C$$

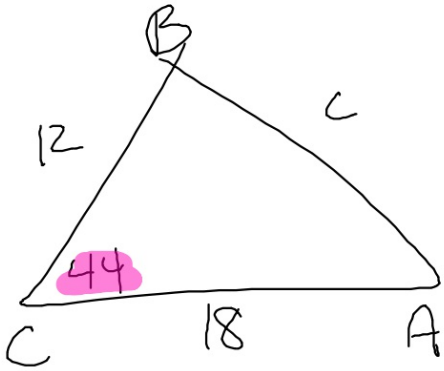
$$\frac{c^2 - a^2 - b^2}{-2ab} = \cos C$$

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

$$m\angle C = \cos^{-1}\left(\frac{a^2 + b^2 - c^2}{2ab}\right)$$

(a) $a = 12, b = 18, m\angle C = 44^\circ$. Find c.





SAS

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

$c^2 = (12)^2 + (18)^2 - 2(12)(18)\cos 44^\circ$ (1) $c = \sqrt{}$

$c^2 = 157.24$

(1)

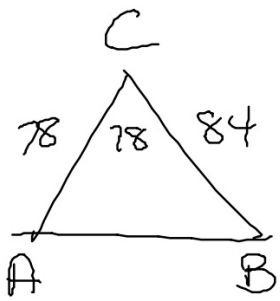
$c = 12.5$

$a=84,\ \ b=78,\ \ m\angle C = 78°$

Find the perimeter.

a=84, b=78, m<C = 78°

Find the perimeter.



(1) $c = \sqrt{a^2 + b^2 - 2ab\cos C}$

(1) $c = \sqrt{(84)^2 + (78)^2 - 2(84)(78)\cos 78^\circ}$

(1) $c \approx 102.1$

(1) The perimeter is 264.1 units.