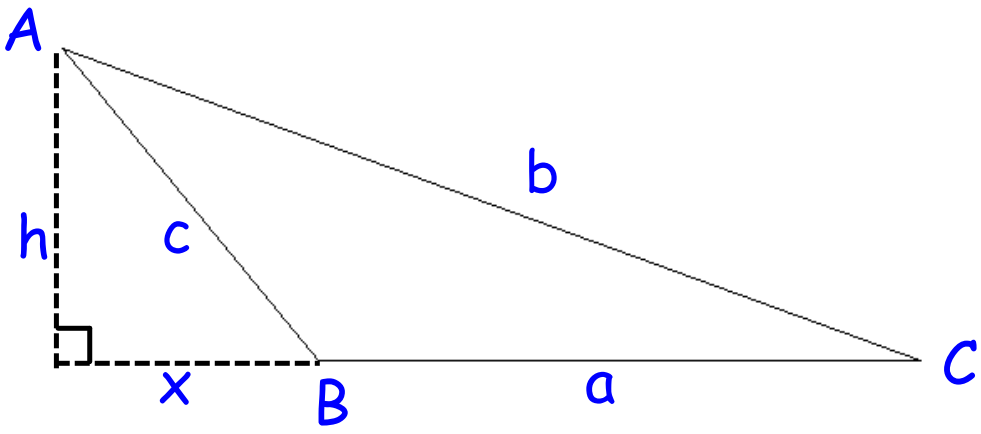
Law of Cosines

Given SIDE, ANGLE, SIDE

Tonight's HW 9.5



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

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

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

Examples:

1) $\Delta ABC, \quad b = 5, \quad c = 4, \quad CosA = \frac{1}{8}, \quad Find\ a.$

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

$a^2 = 5^2 + 4^2 - 2(5)(4)\left(\frac{1}{8}\right)$

$\sqrt{a^2} = \sqrt{36}$

$a = 6$

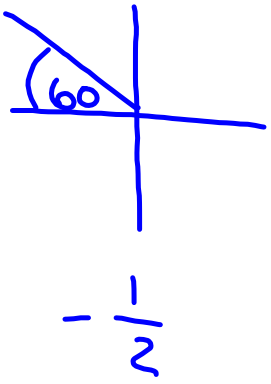
2) $\Delta ABC, \quad a = 3, \quad b = 4, \quad C = 120^\circ, \quad$ *Find c.*

$c^2 = a^2 + b^2 - 2ab\cos 120$

$c^2 = 3^2 + 4^2 - 2(3)(4)(-.5)$

$\sqrt{c^2} = \sqrt{37}$

$c = \sqrt{37} \quad c = 6.1$



3) $\Delta ABC, \quad a = 5, \quad b = 7, \quad CosC = \frac{1}{5}, \quad Find\ c.$

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

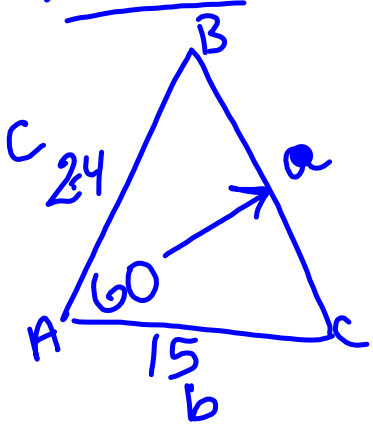
$c^2 = 5^2 + 7^2 - 2(5)(7)\left(\frac{1}{5}\right)$

$c^2 = 60$

$c = \sqrt{60}$

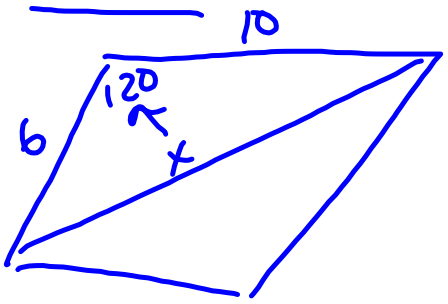
$c = 4\sqrt{15}$ or $c \approx 7.7$

HW #5



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

HW #6



$x^2 = 6^2 + 10^2 - 2 \cdot 6 \cdot 10 \cos 120$

Tonight's HW 9.5

Skip Practice #8