

Solutions Assignment #6

Name _____

Date _____

Advanced Algebra Assignment #6

Chapter 9

Law of Cosines

The following problems are to strengthen your calculator skills:

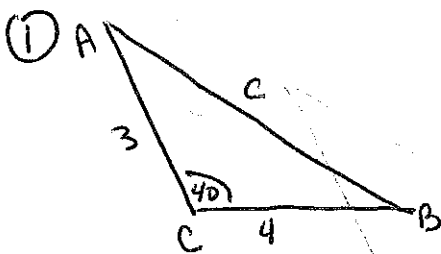
1) $x^2 = 4^2 + 7^2 - 2 \cdot 4 \cdot 7 \cdot \cos 42^\circ$ <u>4.84</u>	2) $x^2 = 10^2 + 4^2 - 2 \cdot 10 \cdot 4 \cdot \cos 50^\circ$ <u>8.04</u>
3) $7^2 = 5^2 + 6^2 - 2 \cdot 5 \cdot 6 \cdot \cos \theta$ <u>78.5°</u>	4) $x^2 = 3^2 + 9^2 - 2 \cdot 3 \cdot 9 \cdot \cos 110^\circ$ <u>10.4</u>
5) $c^2 = 6^2 + 7^2 - 2 \cdot 6 \cdot 7 \cdot \cos 20^\circ$ <u>2.46</u>	6) $a^2 = 12^2 + 17^2 - 2 \cdot 12 \cdot 17 \cdot \cos 74^\circ$ <u>17.9</u>
7) $b^2 = 15^2 + 13^2 - 2 \cdot 15 \cdot 13 \cdot \cos 83^\circ$ <u>18.6</u>	

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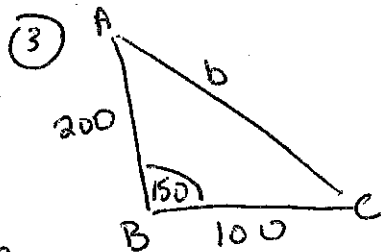
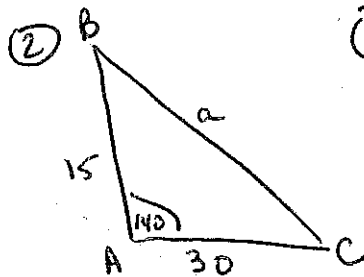
$$a^2 = b^2 + c^2 - 2(b)(c)\cos A$$

The following problems are meant for you to set up and put into the Law of Cosines. After you set them up you should just be able to enter everything into your calculator.

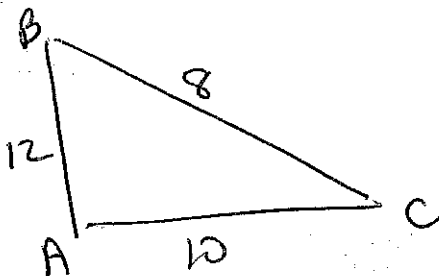
Given Information	Set up into the Law of Cosines	Solution
1) $b=3, a=4$, angle $C=40^\circ, c=$ _____	$c^2 = 3^2 + 4^2 - 2(3)(4)\cos 40$ $c^2 = 3^2 + 4^2 - 2(3)(4)\cos 40$	2.57
2) $c=15, b=30$, angle $A = 140^\circ$, $a=$ _____	$a^2 = 15^2 + 30^2 - 2(15)(30)\cos 140$ $a^2 = 15^2 + 30^2 - 2(15)(30)\cos 140$	42.6
3) $a=100, c=200$, angle $B=150^\circ, b=$ _____	$b^2 = 200^2 + 100^2 - 2(200)(100)\cos 150$	290.9 290.9
4) $a=8, b=10, c=12$, angle $B=$ _____	$10^2 = 12^2 + 8^2 - 2(12)(8)\cos B$	55.7



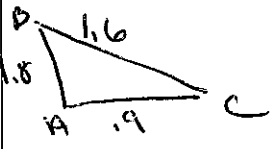
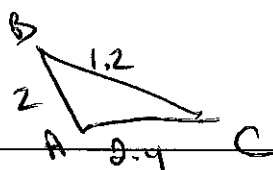
$$c^2 = 3^2 + 4^2 - 3(4)\cos(40)$$



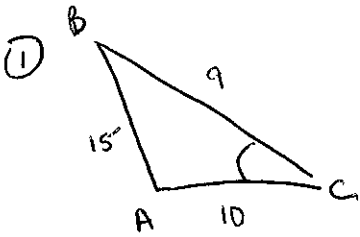
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Assignment #6 Solutions

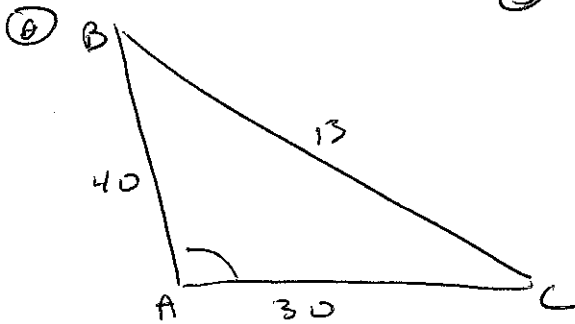
Given Information	Set up into the Law of Cosines	Solution
1) a=9, b=10, c=15, angle C = _____	$15^2 = 10^2 + 9^2 - 2(10)(9)\cos C$	$C = 104.1$
2) a=13, b=30, c=40, smallest angle = _____	$13^2 = 40^2 + 30^2 - 2(40)(30)\cos A$	$A = 13.7^\circ$
3) a=30, b=20, c=40, largest angle = _____	$40^2 = 20^2 + 30^2 - 2(20)(30)\cos C$ C =	104.5
4) a=1.6, b=.9, c=1.8, largest angle = _____	 $1.8^2 = .9^2 + 1.6^2 - 2(.9)(1.6)\cos C$	87.4°
5) a=1.2, b=2.4, c=2.0, smallest angle = _____		$1.2^2 = 2^2 + 2.4^2 - 2(2)(2.4)\cos A$ 29.9°

*
F.x
#3



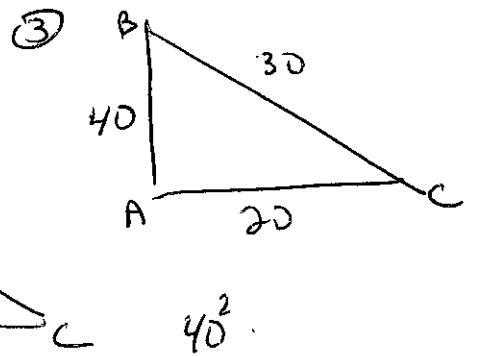
$$15^2 = 10^2 + 9^2 - 2(10)(9)\cos C$$

$$C = 104.1$$



$$13^2 = 40^2 + 30^2 - 2(40)(30)\cos A$$

$$A = 13.7^\circ$$



$$40^2 =$$