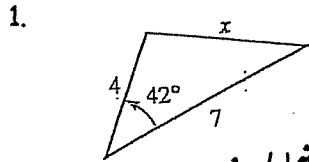


Accel Math III Practice Worksheet #3: Law of Cosine
 Unit #7: Extended Trigonometry
 MA3A6 d

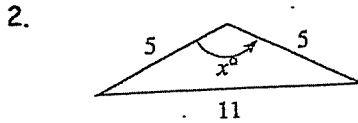
Name Mina

Part I

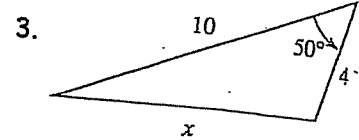
Use the Law of Cosines to write an equation involving the missing side or angle. DO NOT SOLVE.



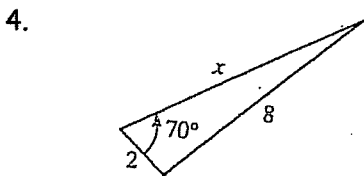
$$x^2 = 4^2 + 7^2 - 2(4)(7)\cos 42^\circ$$



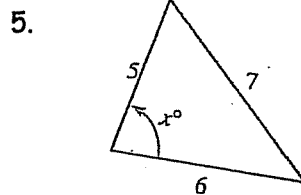
$$11^2 = 5^2 + 5^2 - 2(5)(5)\cos x$$



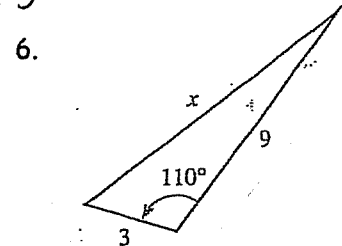
$$x^2 = 10^2 + 4^2 - 2(10)(4)\cos 50^\circ$$



$$8^2 = x^2 + 2^2 - 2(2)(x)\cos 70^\circ$$



$$7^2 = 5^2 + 6^2 - 2(5)(6)\cos x$$



$$x^2 = 3^2 + 9^2 - 2(3)(9)\cos 110^\circ$$

Examples. Solve for the specific part of each triangle. Give angles to nearest tenth of a degree and lengths to three significant digits.

1. $b = 10, c = 14, \angle A = 54^\circ$ find a

$$a^2 = 10^2 + 14^2 - 2(10)(14)\cos 54^\circ$$

$$a^2 = 131.4 \quad \boxed{a = 11.5}$$

2. $a = 30, c = 37, \angle B = 102.6^\circ$ find b

$$b^2 = 30^2 + 37^2 - 2(30)(37)\cos 102.6^\circ$$

$$\boxed{b = 52.5}$$

3. $b = 12, c = 10, \angle A = 38^\circ$ find a

$$a^2 = 12^2 + 10^2 - 2(12)(10)\cos 38^\circ$$

$$\boxed{a = 7.41}$$

4. $a = 4, b = 3, c = 6$ find $\angle C$

$$6^2 = 4^2 + 3^2 - 2(4)(3)\cos C \quad \boxed{\angle C = 117.3^\circ}$$

5. $a = 2, b = 3, \angle C = 60^\circ$ find c

$$c^2 = 2^2 + 3^2 - 2(2)(3)\cos 60^\circ$$

$$\boxed{c = 2.64}$$

6. $a = 14, b = 15, c = 18$ find $\angle A$

$$14^2 = 15^2 + 18^2 - 2(15)(18)\cos A \quad \angle A = 49.2^\circ$$

7. $a = 18, b = 29, c = 16$

largest angle 116.9° smallest angle 29.5°

8. Middleton is 8 km east of Mandra and Deerfield is 10 km northwest of Mandra. How far is Middleton from Deerfield?

$$x^2 = 8^2 + 10^2 - 2(8)(10)\cos 135^\circ$$

$$\boxed{x = 16.8 \text{ km}}$$

