More Trig – Solving Equations

Hw Section 10.1 Name_____

Solve each equation. Show ALL work. If there is ANYTHING you don't understand, ask Mr. McConnell. Please. Round angles to the nearest tenth and lengths to hundredth.

$a^2 = b^2 + c^2 - 2bc \cdot \cos(m\angle A)$

#1) $a^2 = 7^2 + 8^2 - 2(7)(8)\cos(50°)$

$a^2 = 49 + 64 - 112\cos(50°)$

$a^2 = 113 - 112\cos(50°)$

$a = \pm\sqrt{113 - 112\cos(50°)}$

$a \approx 6.40$

$b^2 = a^2 + c^2 - 2ac \cdot \cos(m\angle B)$

#2) $b^2 = 4.2^2 + 3.7^2 - 2(4.2)(3.7)\cos(70°)$

$b^2 = 17.64 + 13.69 - 31.08\cos(70°)$

$b^2 = 31.33 - 31.08\cos(70°)$

$b = \pm\sqrt{31.33 - 31.08\cos(70°)}$

$b \approx 4.55$

$c^2 = a^2 + b^2 - 2ab \cdot \cos(m\angle C)$

#3) $c^2 = 10^2 + 8^2 - 2(10)(8)\cos(75°)$

$c^2 = 100 + 64 - 160\cos(75°)$

$c^2 = 164 - 160\cos(75°)$

$c = \pm\sqrt{164 - 160\cos(75°)}$

$c \approx 11.07$

$c^2 = a^2 + b^2 - 2ab \cdot \cos(m\angle C)$

#4) $c^2 = 2^2 + 7^2 - 2(2)(7)\cos(60°)$

$c^2 = 4 + 49 - 28\cos(60°)$

$c^2 = 53 - 28\cos(60°)$

$c \approx \pm\sqrt{53 - 28\cos(60°)}$

$c \approx 6.24$

$a^2 = b^2 + c^2 - 2bc \cdot \cos(m\angle A)$

#5) $4^2 = 6^2 + 9^2 - 2(6)(9)\cos(m\angle A)$

$16 = 36 + 81 - 108\cos(m\angle A)$

$16 = 117 - 108\cos(m\angle A)$

$-101 = -108\cos(m\angle A)$

$\frac{101}{108} = \cos(m\angle A)$

$\cos^{-1}\left(\frac{101}{108}\right) = m\angle A$

$20.7° \approx m\angle A$

$b^2 = a^2 + c^2 - 2ac \cdot \cos(m\angle B)$

#6) $17^2 = 11^2 + 7^2 - 2(11)(7)\cos(m\angle B)$

$289 = 121 + 49 - 154\cos(m\angle B)$

$289 = 170 - 154\cos(m\angle B)$

$119 = -154\cos(m\angle B)$

$\frac{119}{-154} = \cos(m\angle B)$

$\cos^{-1}\left(\frac{119}{-154}\right) = m\angle B$

$140.6° \approx m\angle B$

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Hw Section 10.1 Name_____

$c^2 = a^2 + b^2 - 2ab \cdot \cos(m\angle C)$

#7) $4^2 = 3^2 + 6^2 - 2(3)(6)\cos(m\angle C)$

$16 = 9 + 36 - 36\cos(m\angle C)$

$16 = 45 - 36\cos(m\angle C)$

$-29 = -36\cos(m\angle C)$

$\frac{29}{36} = \cos(m\angle C)$

$\cos^{-1}\left(\frac{29}{36}\right) = m\angle C$

$36.3^\circ \approx m\angle C$

$c^2 = a^2 + b^2 - 2ab \cdot \cos(m\angle C)$

#8) $8^2 = 4^2 + 5^2 - 2(4)(5)\cos(m\angle C)$

$64 = 16 + 25 - 40\cos(m\angle C)$

$64 = 41 - 40\cos(m\angle C)$

$23 = -40\cos(m\angle C)$

$\frac{23}{-40} = \cos(m\angle C)$

$\cos^{-1}\left(\frac{23}{-40}\right) = m\angle C$

$125.1^\circ \approx m\angle C$

$b^2 = a^2 + c^2 - 2ac \cdot \cos(m\angle B)$

#9) $9^2 = 12^2 + 10^2 - 2(12)(10)\cos(m\angle B)$

$81 = 144 + 100 - 240\cos(m\angle B)$

$81 = 244 - 240\cos(m\angle B)$

$-163 = -240\cos(m\angle B)$

$\frac{163}{240} = \cos(m\angle B)$

$\cos^{-1}\left(\frac{163}{240}\right) = m\angle B$

$47.2^\circ \approx m\angle B$

$a^2 = b^2 + c^2 - 2bc \cdot \cos(m\angle A)$

#10) $10^2 = 10^2 + 15^2 - 2(10)(15)\cos(m\angle A)$

$100 = 100 + 225 - 300\cos(m\angle A)$

$100 = 325 - 300\cos(m\angle A)$

$-225 = -300\cos(m\angle A)$

$\frac{225}{300} = \cos(m\angle A)$

$\cos^{-1}\left(\frac{225}{300}\right) = m\angle A$

$41.4^\circ \approx m\angle A$

#11) In triangle ABC, a = 9, b = 10, c = 11. Find m∠C.

Try to figure this out by looking at previous problems.

#12) In triangle ABC, a = 2.3, b = 1.3, c = 3. Find m∠B.

#1)	a = 6.40	#2)	b = 4.55	#3)	c = 11.07	#4)	c = 6.24	#5)	m∠A = 20.7°
#6)	m∠B = 140.6°	#7)	m∠C = 36.3°	#8)	m∠C = 125.1°	#9)	m∠B = 47.2°	#10)	m∠A = 41.4°
#11)	m∠C = 70.5°	#12)	m∠B = 24.1°						