

# Geometry Ch. 9C Hw #4

$$1) b^2 = 3^2 + 8^2 - 2(3)(8)\cos(36^\circ)$$

$$b^2 = 73 - 48\cos(36^\circ)$$

$$b^2 = 34.167$$

$$b = 5.85$$

$$2) 7^2 = 5^2 + 8^2 - 2(5)(8)\cos(A)$$

$$49 = 25 + 64 - 80\cos(A)$$

$$49 = 89 - 80\cos(A)$$

$$-89 \quad -89$$

$$-40 = -80\cos(A)$$

$$0.5 = \cos(A)$$

$$A = 60.0^\circ$$

$$3) \frac{\sin(A)}{12} = \frac{\sin(53^\circ)}{16}$$

$$16\sin(A) = 12\sin(53^\circ)$$

$$\sin(A) = \frac{12\sin(53^\circ)}{16}$$

$$\sin(A) = 0.59897\dots$$

$$A = 36.8^\circ$$

$$4) 19^2 = 12^2 + 8^2 - 2(12)(8)\cos(C)$$

$$361 = 208 - 192\cos(C)$$

$$-208 \quad -208$$

$$153 = -192\cos(C)$$

$$-0.796875 = \cos(C)$$

$$C = 142.8^\circ$$

$$5) \frac{\sin(42^\circ)}{7} = \frac{\sin(73^\circ)}{b}$$

$$b\sin(42^\circ) = 7\sin(73^\circ)$$

$$b = \frac{7\sin(73^\circ)}{\sin(42^\circ)}$$

$$b = 10.00$$

$$6) \frac{\sin(118^\circ)}{17} = \frac{\sin(A)}{12}$$

$$17\sin(A) = 12\sin(118^\circ)$$

$$\sin(A) = \frac{12\sin(118^\circ)}{17}$$

$$\sin(A) = .623$$

$$A = \sin^{-1}(.623)$$

$$A = 38.6^\circ$$

$$m\angle C = 180 - 118 - 38.6$$

$$= 23.4^\circ$$

$$\text{Area} = \frac{1}{2}(12)(17)\sin(23.4^\circ)$$

$$= 40.5$$

$$7) a^2 + 3^2 = 8^2$$

$$a^2 + 9 = 64$$

$$a^2 = 55$$

$$a = 7.42$$

$$8) 7^2 = 9^2 + 11^2 - 2(9)(11)\cos(B)$$

$$49 = 81 + 121 - 198\cos(B)$$

$$49 = 202 - 198\cos(B)$$

$$-153 = -198\cos(B)$$

$$.7727 = \cos(B)$$

$$B = 39.4^\circ$$

$$\text{Area} = \frac{1}{2}(9)(11)\sin(39.4\dots)$$

$$= 31.42$$

$$9) c^2 = 10^2 + 21^2 - 2(10)(21)\cos(85^\circ)$$

$$c^2 = 541 - 420\cos(85^\circ)$$

$$c^2 = 504.39\dots$$

$$c = 22.46$$

$$10. \cos(58^\circ) = \frac{b}{22}$$

$$b = 22 \cos(58^\circ)$$

$$b = 11.66$$

$$\text{Area} = \frac{1}{2}(11.66)(22)\sin(58^\circ)$$

$$= 108.75$$

$$11. 17^2 = 6^2 + 14^2 - 2(6)(14)\cos(B)$$

$$289 = 232 - 168\cos(B)$$

$$-232 \quad -232$$

$$57 = -168\cos(B)$$

$$-168 \quad -168$$

$$-0.33928... = \cos(B)$$

$$B = 109.8^\circ$$

$$12. 3^2 + 9^2 = c^2$$

$$9 + 81 = c^2$$

$$90 = c^2$$

$$c = 9.49$$

$$\text{Area} = \frac{1}{2}(3)(9)$$

$$= 13.5$$

$$13. \tan(B) = \frac{3}{10}$$

$$B = \tan^{-1}\left(\frac{3}{10}\right)$$

$$B = 16.7^\circ$$

14. Law of Cosines

15. Law of Sines

16. Law of Sines

17. Law of Cosines

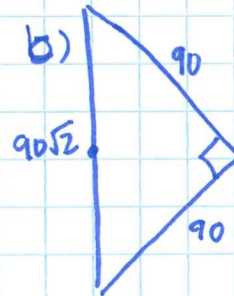
$$18. a^2 = 60.5^2 + 90^2 - 2(60.5)(90)\cos(45^\circ)$$

$$a^2 = 11760.25 - 10890\cos(45^\circ)$$

$$a^2 = 4891.857$$

$$a = 63.72$$

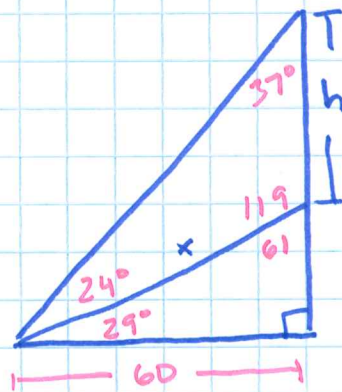
~~$$5) 90^\circ =$$~~



$$\text{2nd to Pitch} = 90\sqrt{2} - 66.5$$

$$= 66.78 \text{ ft}$$

$$19) h = 46.36$$



$$\frac{\cos(29^\circ)}{1} = \frac{60}{x} \quad \begin{array}{l} \text{adj} \\ \text{hyp} \end{array}$$

$$x \cos(29^\circ) = 60$$

$$x = 68.60$$

$$\frac{\sin(24^\circ)}{h} = \frac{\sin(37^\circ)}{68.60}$$

$$h \sin(37^\circ) = 68.60 \sin(24^\circ)$$

$$h = \frac{68.60 \sin(24^\circ)}{\sin(37^\circ)}$$

$$h = 46.36$$