

HW 6.5

April 1, 2015 7:45 PM

6.5 ~ by Jennifer Wu

1a)  $AC = b$

$$b^2 = 5^2 + 4^2 - 40(\cos 50)$$

$$b = 3.92$$

b) BC is actually meant  $\rightarrow$  be  $AC^?$

$$AC = 10.66$$

c) 86.42

d) 4.11

e)  $24.49^\circ$

f)  $88.98^\circ$

g) 46.57

h)  $12^2 = 6^2 + 9^2 - 108(\cos C)$

$$\cos C = -0.25$$

$$\angle C = 104.48$$

i)  $b^2 = 6^2 + 7^2 - 84(\cos 110)$

$$b = 10.66$$

$$49 = 36 + 113.64 - 127.92(\cos A)$$

$$\cos A = 0.79$$

$$A = 37.81^\circ$$

j)  $c^2 = 64 + 144 - 192(\cos 110)$

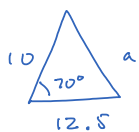
$$c = 16.54$$

$$144 = 64 + 273.57 - 264.64(\cos B)$$

$$\cos B = 0.73$$

$$B = 43.11^\circ$$

2) 9:00  $\rightarrow$  (1.30  $\rightarrow$   $\times 2.5$ )

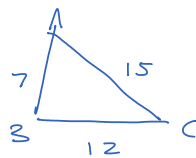


$$a^2 = 100 + 156.25 - 250(\cos 70)$$

$$a^2 = 100 + 156.25 - 85.51$$

$$a = 13.1 \text{ km}$$

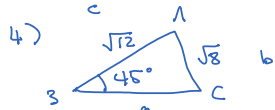
3)



$$15^2 = 7^2 + 12^2 - 168(\cos B)$$

$$\cos B = -0.19$$

$$B = 100.95$$



$$8 = a^2 + 12 - 4a\sqrt{3}(\cos 45)$$

$$a^2 - 4.9a + 4 = 0$$

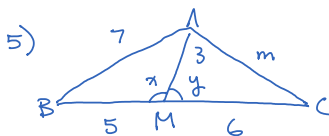
$$a = \frac{4.9 \pm \sqrt{24-16}}{2} = 3.86 \text{ or } 1.04$$

$$14.9 = 12 + 8 - 19.6(\cos A)$$

$$A = 74.9^\circ$$

$$1.04^2 = 12 + 8 - 19.6(\cos A)$$

$$A = 152^\circ$$



$$49 = 25 + 9 - 30(\cos M)$$

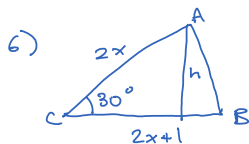
$$x = 120^\circ$$

$$y = 60^\circ$$

$$m^2 = 3^2 + 6^2 - 36(\cos 60)$$

$$m^2 = \sqrt{21}$$

$$m = 3\sqrt{3}$$



$$\sin 30 = \frac{h}{2x}$$

$$h = x$$

$$\frac{(2x+1)x}{2} = 18$$

$$x = 4$$

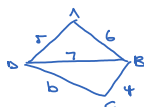
$$2x^2 + x - 36 = 0$$

$$(x-4)(2x+9) = 0$$

7)  $7^2 = 5^2 + 6^2 - 60(\cos A)$

$$\angle A = 78.46^\circ$$

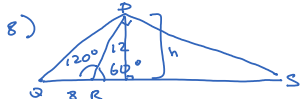
$$\angle C = 101.54^\circ$$



$$49 = b^2 + 16 - 8b(\cos 101.54)$$

$$b^2 - 6b + 33 = 0$$

$$b = \frac{-6 \pm \sqrt{2.56 + 132}}{2} = 4.78$$



$$\angle PRS = 180 - 120 = 60^\circ$$

$$\cos(60) = \frac{12}{RS}$$

$$RS = 24 \quad QS = 24 + 8 = 32$$

$$\sin(60) = \frac{h}{12}$$

$$h = 10.39$$

$$\frac{32 \cdot 10.39}{2} = 166.24$$

9) ?



$$b^2 = 256 + 441 - 672(\cos 60)$$

$$b = 19$$

$$\frac{0.5}{a} = \frac{0.97}{19}$$

$$a = 9.8$$



$$b = 240 + 11 - 612(\cos 60)$$

$$b = 19$$

$$\frac{a}{\sin 60} = \frac{16}{\sin 105}$$

$$a = 9.8$$

$$(1) \frac{0.996}{150} = \frac{0.77}{b}$$

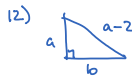
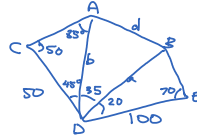
$$b = 115.37$$

$$\cos(20) = \frac{a}{100}$$

$$a = 93.97$$

$$d^2 = 13310.24 + 8830.36 - 21682.64(\cos 35)$$

$$d = 66.17568 \rightarrow 66m$$

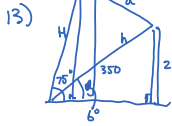


$$b = \sqrt{(a+2)^2 - a^2}$$

$$= \sqrt{4a+4}$$

$$= 2\sqrt{a+1}$$

$$\sin \theta = \frac{a}{H} = \frac{2\sqrt{a+1}}{a+2}$$



$$\textcircled{1} \sin 6 = \frac{222}{h} \quad h = 2124$$

$$\textcircled{2} \sin 75 = \frac{350}{H} \quad H = 362.36$$

$$a^2 = 121357.8 \text{ km/hr}$$