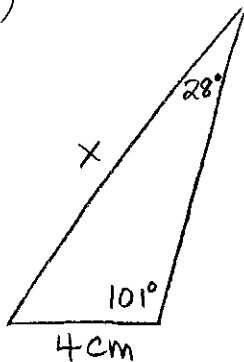


## 4.2

## Foundations of Math II

3. a) p. 171  $\neq$   $3a, 4a, 5a, 6, 9, 10, 12$



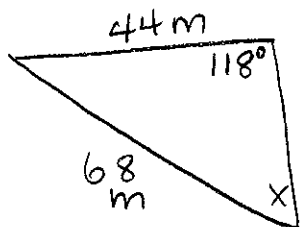
$$\frac{x}{\sin 101^\circ} = \frac{4}{\sin 28^\circ}$$

$$x = \frac{4 \sin 101^\circ}{\sin 28^\circ}$$

$$x = \frac{4(0.981627)}{0.46947}$$

$$x = 8.4 \text{ cm}$$

4. a)



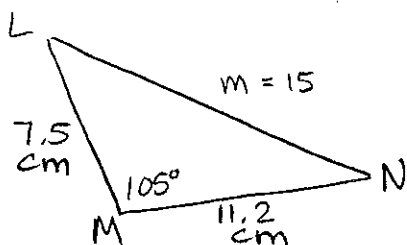
$$\frac{\sin x}{44} = \frac{\sin 118^\circ}{68}$$

$$\sin x = \frac{44 \sin 118^\circ}{68}$$

$$\sin x = 0.571319$$

$$\angle x = 35^\circ$$

5. a)



$$\textcircled{1} m^2 = 7.5^2 + 11.2^2 - 2(7.5)(11.2)\cos 105^\circ$$

$$m^2 = 56.25 + 125.44 + 43.4816$$

$$m^2 = 225.1716$$

$$m = 15.0057$$

$$m = 15.0$$

$$\textcircled{2} \frac{\sin L}{11.2} = \frac{\sin 105^\circ}{15}$$

$$\sin L = \frac{11.2 \sin 105^\circ}{15}$$

$$\sin L = 0.72122$$

$$\angle L = 46^\circ$$

$$\textcircled{3} \angle N = 180^\circ - 105^\circ - 46^\circ$$

$$\angle N = 29^\circ$$

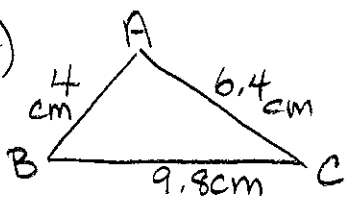
You could have found  $\angle N$  in step  $\textcircled{2}$  with:

$$\frac{\sin N}{7.5} = \frac{\sin 105^\circ}{15}$$

and then found  $\angle L$  in step  $\textcircled{3}$

P.171 cont.

6. a)



The largest angle is across from the longest side so it is  $\angle A$ .

estimate  $120^\circ$  (my drawing does not have accurate scale!)

$$b) \quad 9.8^2 = 4^2 + 6.4^2 - 2(4)(6.4) \cos A$$

$$96.04 = 16 + 40.96 - 51.2 \cos A$$

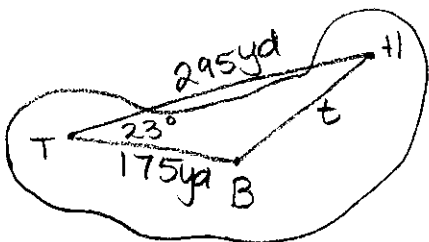
$$39.08 = -51.2 \cos A$$

$$-0.76328 = \cos A$$

$$\angle A = 139.8^\circ$$

c) My estimate was off. I could have been more accurate by drawing a diagram with more accurate scale.

9.



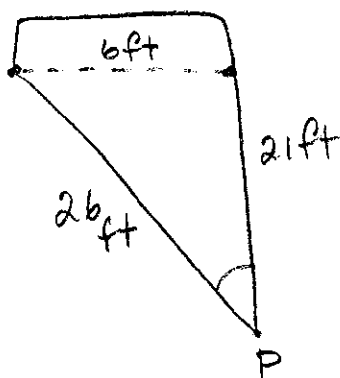
$$t^2 = 175^2 + 295^2 - 2(175)(295) \cos 23^\circ$$

$$t^2 = 30625 + 87025 - 95042.126$$

$$t^2 = 22607.874$$

$$t = 150 \text{ yds}$$

10.



$$6^2 = 26^2 + 21^2 - 2(26)(21) \cos P$$

$$36 = 676 + 441 - 1092 \cos P$$

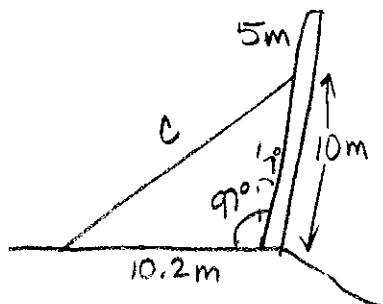
$$-1081 = -1092 \cos P$$

$$0.9899 = \cos P$$

$$\angle P = 8.1^\circ$$

shot must be within  $8.1^\circ$

12.



$$c^2 = 10^2 + 10.2^2 - 2(10)(10.2) \cos 97^\circ$$

$$c^2 = 100 + 104.04 + 24.8613$$

$$c^2 = 228.9013$$

$$c = 15.1 \text{ m}$$

The cable is 15.1 m long