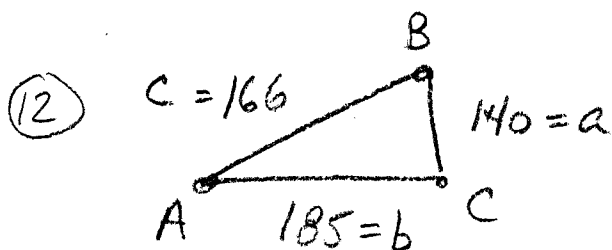


Alg. 2  
 Homework review: Pg 736 # 12, 13, 14.



SSS  $\Rightarrow$  Law of Cosines  
 Begin with largest angle  
 $\Rightarrow$  Angle B

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$185^2 = 140^2 + 166^2 - 2(140)(166) \cos B$$

$$34225 = 19600 + 27556 - 46480 \cos B$$

$$34225 = 47156 - 46480 \cos B$$

$$-12931 = -46480 \cos B \quad \therefore \cos B = \frac{-12931}{-46480}$$

$$\cos B = .2782$$

$$B = \cos^{-1}(.2782)$$

$$B = 73.8 \approx 74^\circ$$

Find C next:

$$\frac{\sin C}{166} = \frac{\sin 73.8}{185} \quad \therefore \sin C = 166 \left( \frac{\sin 73.8}{185} \right)$$

$$\sin C = 166 \left( \frac{.9603}{185} \right)$$

$$\sin C = 166 (.0052)$$

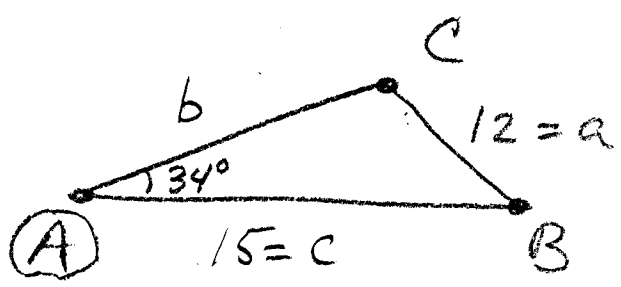
$$\sin C = .8632$$

$$\therefore A = 180 - 73.8 - 59.7 = 46.5 \approx 47^\circ \quad C = \sin^{-1}(.8632)$$

$$C = 59.7^\circ \approx 60^\circ$$

pg 736

(B)



SSA

⇒ SPECIAL CASE  
⇒ LAW of COSINES

Need Cos A Form

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$12^2 = b^2 + 15^2 - 2(b)15 \cos 34^\circ$$

$$144 = b^2 + 225 - 30b(0.8290)$$

$$0 = b^2 + 81 - 24.87b$$

$$b^2 - 24.87b + 81 = 0$$

$$a = 1 \quad b^2 - 4ac$$

$$b = -24.87 \quad (-24.87)^2 - 4(1)(81)$$

$$c = 81 \quad 618.52 - 324 = d = 294.52$$

$$\text{side } b \Rightarrow \frac{+24.87 \pm \sqrt{294.52}}{2(1)}$$

$$\Rightarrow \frac{24.87 \pm 17.16}{2}$$

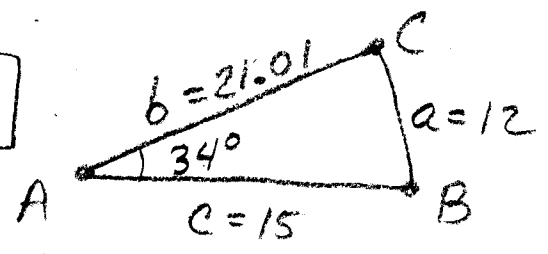
$$\Rightarrow \left\{ \begin{matrix} 21.01 \\ b \end{matrix} , \begin{matrix} 3.86 \\ b \end{matrix} \right\}$$

LOOK  
⇒ Two Triangles!

→ see next page

⑬ TRIANGLE # 1

(CONTINUED)



use Law of Cosines to find m∠B ⇒ Biggest angle

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$21.01^2 = 12^2 + 15^2 - 2(12)(15) \cos B$$

$$72.42 = -360 \cos B \quad \therefore \cos B = -.2012$$

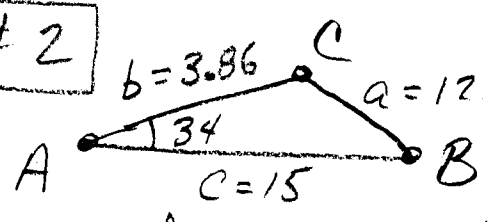
$$B = \cos^{-1}(-.2012)$$

$$B = 101.6^\circ \sim 102^\circ$$

$$\therefore C = 180 - 101.6 - 34 = 44.4^\circ \sim 44^\circ = C$$

⑬ TRIANGLE # 2

(CONTINUED)



use Law of Cosines to find m∠C ⇒ biggest angle.

$$c^2 = a^2 + b^2 - 2ab \cos C$$

$$15^2 = 12^2 + 3.86^2 - 2(12)(3.86) \cos C$$

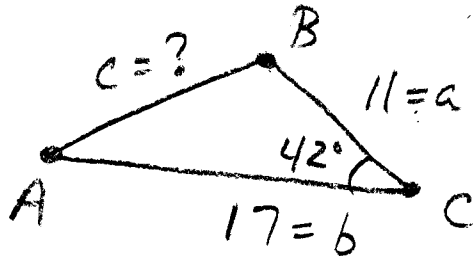
$$66.10 = -92.64 \cos C \quad \therefore \cos C = -.7135$$

$$C = \cos^{-1}(-.7135)$$

$$C = 135.5^\circ \sim 136^\circ$$

$$\therefore B = 180 - 135.5 - 34 = 10.5^\circ \approx 11^\circ = B$$

14



(SAS)  $\Rightarrow$  Law of Cos  
Know  $\angle C \Rightarrow$  use  $c^2$  form

$$c^2 = a^2 + b^2 - 2ab \cos C$$

$$c^2 = 11^2 + 17^2 - 2(11)(17)\cos 42^\circ$$

$$c^2 = 121 + 289 - 374(.7431)$$

$$c^2 = 410 - 277.92 \quad \therefore c = \sqrt{132.08}$$

Side  $c = 11.49 \sim 11.5$

$$\therefore \frac{\sin 42}{11.49} = \frac{\sin B}{17}$$

$$\therefore \sin B = 17 \left( \frac{.6691}{11.49} \right)$$

$$B = \sin^{-1}(.9900)$$

$B = 81.9 \sim 82^\circ$

$$\therefore A \Rightarrow 180 - 81.9 - 42 = 56.1 \sim 56^\circ = A$$