

## Chapter 2 Epilogue

## Trig Word Problems

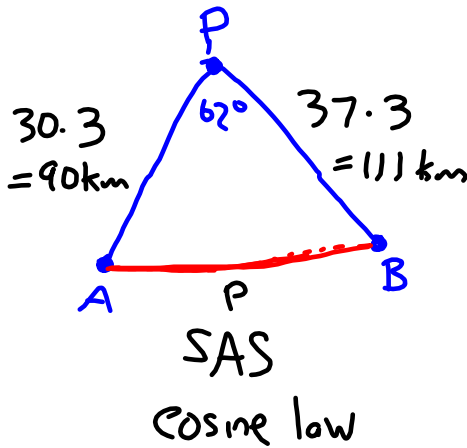


Sep 29-9:39 AM

Use <u>sine law</u> when you know...	Use <u>cosine law</u> when you know...
<ul style="list-style-type: none"> <li>• <u>AAS</u></li> </ul>	<ul style="list-style-type: none"> <li>• <u>SAS</u></li> </ul>
<ul style="list-style-type: none"> <li>• <u>AAS</u></li> </ul>	<ul style="list-style-type: none"> <li>• <u>SSS</u></li> </ul>

Sep 20-2:01 PM

- 1) Two cruises leave the same port. Cruise A travels at 30 km/h. Cruise B travels at 37 km/h. The angle between their path is  $62^\circ$ . How far are the two cruises apart three hours later?



$$p^2 = a^2 + b^2 - 2ab \cos P$$

$$p^2 = 111^2 + 90^2 - 2(111)(90)\cos 62^\circ$$

$$p^2 = 12321 + 8100 - 19980 \cos 62^\circ$$

$$p^2 = 20421 - 9380.0418$$

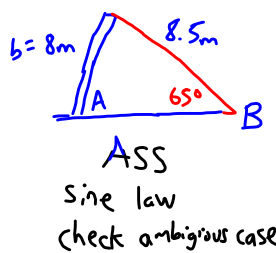
$$\sqrt{p^2} = \sqrt{11040.9582}$$

$$p = 105.0 \text{ km}$$

The distance between the cruises is 105 km.

Mar 5-8:57 AM

- 2) A 8m telephone pole is not standing up straight. There is a wire attached to the top of the pole and anchored in the ground. The wire is 8.5 long. The wire makes a  $65^\circ$  angle with the ground. What angle does the telephone pole make with the ground?



acute  $8 > 8.5$  NO!  
 $8 < 8.5 \sin 65^\circ$   
 $8 < 7.703$  NO!  
 2  $\Delta$ 's



$$\frac{\sin A}{a} = \frac{\sin B}{b}$$

$$\frac{(8.5) \sin A}{8.5} = \frac{\sin 65^\circ (8.5)}{8}$$

$$\sin A = \frac{8.5 \sin 65^\circ}{8}$$

$$A = \sin^{-1}(0.96295)$$

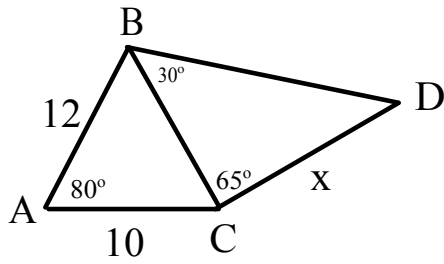
$$A = 74.4^\circ$$

or  $A = 180^\circ - 74.4^\circ$   
 $A = 105.6^\circ$

$\therefore$  the pole makes an angle of  $74.4^\circ$  or  $105.6^\circ$

Jan 12-8:45 AM

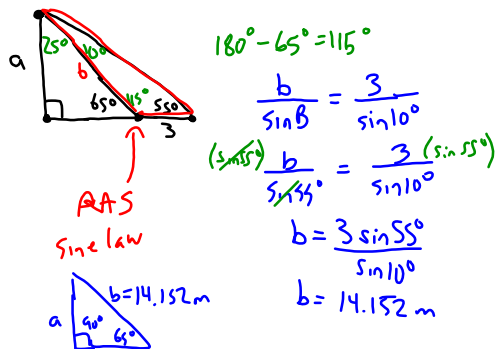
**Example 3:** Find x to the nearest unit.



Oct 20-8:48 AM

- 3) Maggy wants to find the height of the tree outside her house. From the ground, she measures the angle of elevation to the top of the tree to be  $65^\circ$ . She paces 3 m farther away from the tree and measures the angle of elevation to be  $55^\circ$ . Determine the height of the tree.

SOH CAH TOA



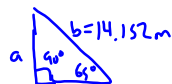
$$180^\circ - 65^\circ = 115^\circ$$

$$\frac{b}{\sin B} = \frac{3}{\sin 10^\circ}$$

$$(\sin 115^\circ) \frac{b}{\sin 115^\circ} = \frac{3 (\sin 55^\circ)}{\sin 10^\circ}$$

$$b = \frac{3 \sin 55^\circ}{\sin 10^\circ}$$

$$b = 14.152 \text{ m}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B}$$

$$(\sin 65^\circ) \frac{a}{\sin 65^\circ} = \frac{14.152 (\sin 65^\circ)}{\sin 90^\circ}$$

$$a = \frac{14.152 \sin 65^\circ}{\sin 90^\circ}$$

$$a = 12.8 \text{ m}$$

The height of the tree is 12.8 m.

Mar 3-9:18 AM

- 5) Bailey and Riley are standing 5250 feet apart on a straight, horizontal road. They see a hot-air balloon between them directly above the road. The angle of elevation from Bailey is  $60^\circ$  and from Riley is  $75^\circ$ . Find the height of the balloon.

Jan 12-8:45 AM

## Word Problems Worksheet

# 1-5, 7-9



Sep 30-10:29 AM