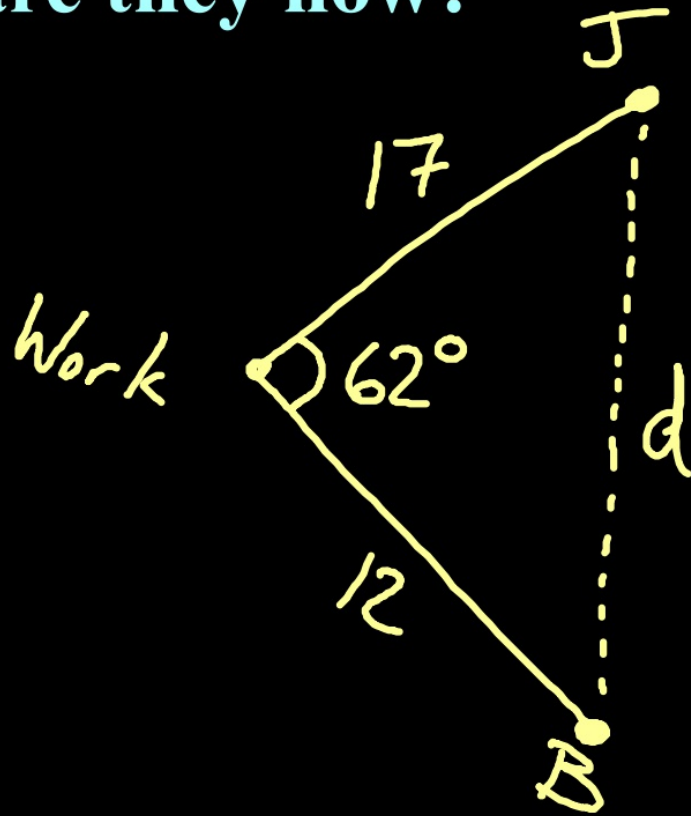


Warm Up

1. Boyd and Johnny leave work. Boyd goes 12 miles and Johnny travels 17 miles. If there is a 62° angle between their route, how far apart are they now?



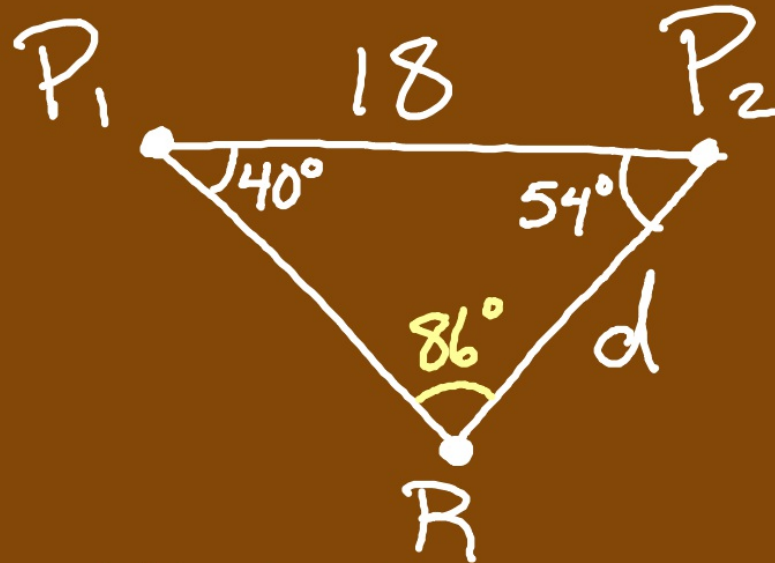
$$d^2 = 12^2 + 17^2 - 2(12)(17)\cos 62$$

$$\sqrt{\text{Ans}}$$

$$d = 15.5 \text{ miles}$$

Warm Up

2. Two police stations are 18 miles apart. A bank is robbed between them. The angles to the robbery are 40° and 54° . Find the distance for the station that is closer to the robbery.



$$180 - 40 - 54 =$$

$$\frac{d}{\sin 40} = \frac{18}{\sin 86}$$

$$d = \frac{18 \sin 40}{\sin 86}$$

$$d = 11.6 \text{ miles}$$

Warm Up

3. Arlo looks out of his window at a tree in the yard. The angle of elevation to the top of the tree is 28° and the angle of depression to the bottom is 12° . The tree is 82 ft from the house. How tall is the tree?

TANGENT

$$82 \tan 28 + 82 \tan 12 = \boxed{61 \text{ ft}}$$

Solve each triangle below:

1. $A = 38^\circ, B = 97^\circ, c = 34$

2 Angles

Sine

2. $A = 20^\circ, B = 115^\circ, a = 7$

$a = \underline{29.6}$ $b = \underline{47.7}$ $C = \underline{45^\circ}$

$b = \underline{18.5}$ $c = \underline{14.5}$ $C = \underline{45^\circ}$

3. $A = 98^\circ, a = 14, b = 7$

Match

4. $A = 75^\circ, a = 12, b = 10$

Sine

$B = \underline{30^\circ}$ $C = \underline{52^\circ}$ $c = \underline{11.1}$

$B = \underline{54^\circ}$ $C = \underline{51^\circ}$ $c = \underline{9.7}$

5. $A = 54^\circ, b = 10, c = 12$

No Match

Cosine

6. $A = 104^\circ, b = 18, c = 21$

$a = \underline{10.1}$ $B = \underline{53^\circ}$ $C = \underline{73^\circ}$

$a = \underline{30.8}$ $B = \underline{35^\circ}$ $C = \underline{41^\circ}$

7. $a = 15, b = 23, c = 30$

3 Sides

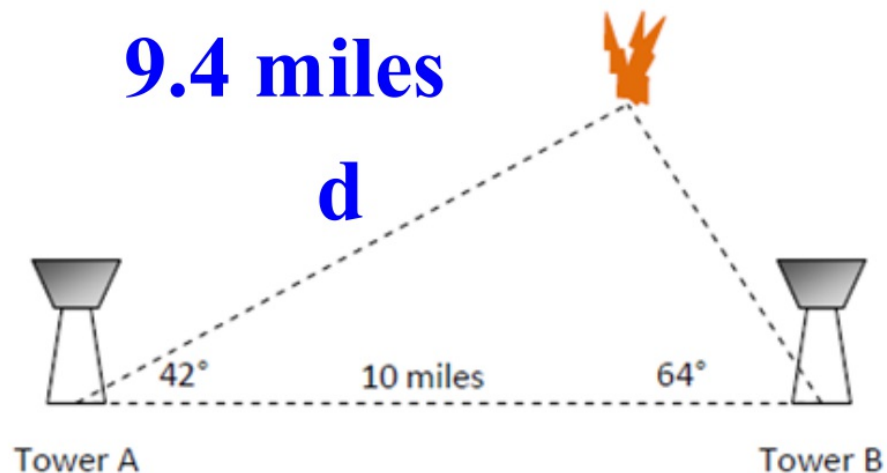
Cosine

8. $a = 22, b = 14, c = 18$

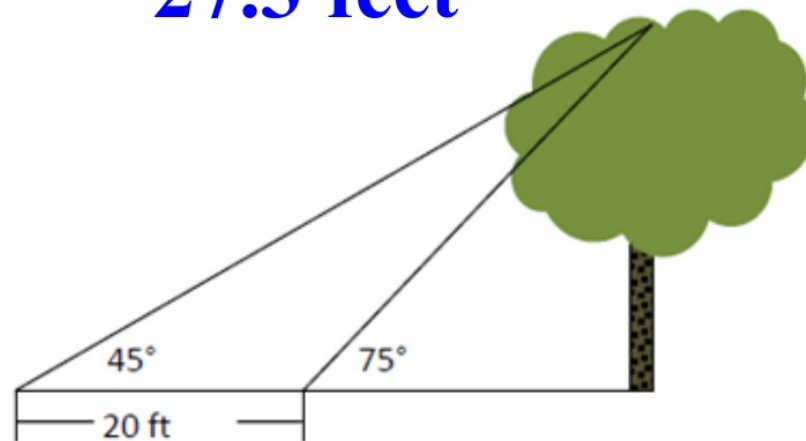
$A = \underline{29^\circ}$ $B = \underline{49^\circ}$ $C = \underline{102^\circ}$

$A = \underline{86^\circ}$ $B = \underline{39^\circ}$ $C = \underline{55^\circ}$

22. Fire towers A and B are located 10 miles apart. They use the direction of the other tower as 0° . Rangers at fire tower A spots a fire at 42° , and rangers at fire tower B spot the same fire at 64° . How far from tower A is the fire to the nearest tenth of a mile?



23. Find the height of the tree below to the nearest foot. **27.3 feet**



Unit 3: Trig Part I

Review

Law of Sine

Law of Cosine

Drawing Pictures

A) **Given 1 Side and 2 Angles** –

1. 180 Rule to get the 3rd Angle
 2. Law of Sine to get 2nd Side
 3. Law of Sine again to get 3rd Side
-

B) **Given 2 Sides and 1 Angle** – First check for a matching angle and side

Match:

1. Law of Sine to get 2nd Angle
2. 180 Rule for 3rd Angle
3. Law of Sine for 3rd Side

NO Match:

1. Law of Cosine for 3rd Side
 2. Law of Sine for 2nd Angle
 3. 180 Rule for 3rd Angle
-

C) **Given 3 Sides** –

1. Law of Cosine to get 1st Angle
2. Law of Sine for 2nd Angle
3. 180 Rule for 3rd Angle

Word Problems...

**Know at the very least
how to confidently
work through questions
like the first 4 examples
on WB 304**

A teacher picks 3 students from 8 to form a group with different tasks for each person. How many groups would be possible?

$${}_8P_3 = 336$$

Gibs is selecting a starting line up for a scrimmage. He needs to pick 4 offensive players, 3 defensive players and a goalie. If he has 7 offensive, 5 defensive and 2 goalies to choose from, how many starting line ups are possible?

$${}_7C_4 \cdot {}_5C_3 \cdot {}_2C_1 = 700$$

What is the probability of rolling a 5 then an odd number on a die?

$$\frac{1}{6} \cdot \frac{3}{6} = \frac{1}{12}$$

What is the probability of rolling a 5 or an odd number on a die?

$$\frac{1}{6} + \frac{3}{6} - \frac{1}{6} = \frac{1}{2}$$

What is the probability of rolling a three exactly 3 times on the next 8 rolls?

$${}^8C_3 \left(\frac{1}{6}\right)^3 \left(\frac{5}{6}\right)^5 = 0.104$$

Assignment::

WB Extra Solving

Practice (Odd)

E.C. for Even