Geometry Worksheet

Name___Key___
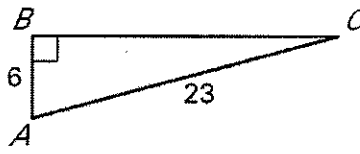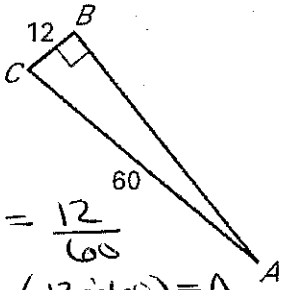
7.7 Solving Right Triangles

Approximate the measure of $\angle A$ to the nearest degree.

1.

$$\text{Tan } A = \frac{37}{29}$$

$2^{nd} \text{ Tan } (37/29) = A$

51.9112

$$\boxed{\angle A \approx 52°}$$

2.

$$\text{Cos } A = \frac{6}{23}$$

$2^{nd} \text{Cos } (6/23) = A$

$74.8783 = A$

$$\boxed{\angle A = 75°}$$

3.

$$\text{Sin } A = \frac{12}{60}$$
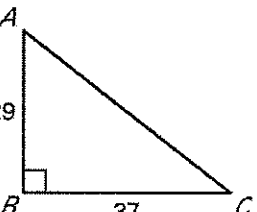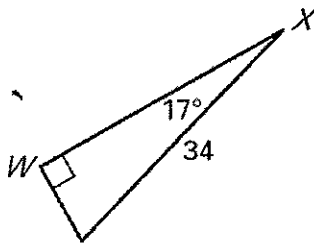
$2^{nd} \text{ Sin } (12 \div 60) = A$

$11.5369 = A$

$$\boxed{\angle A = 12°}$$
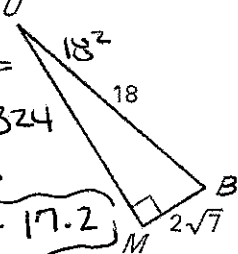
Solve the right triangle. Round decimal answers to the nearest tenth.

4.

look at #1

$$\boxed{\begin{array}{l} \angle A = 52° \\ \angle C = 38° \end{array}}$$

$29^2 + 37^2 = AC^2$

$841 + 1369 = AC^2$

$2210 = AC^2$

$AC = 47.0106$

$$\boxed{AC = 47.0}$$

5.

$$\boxed{\angle V = 73°}$$

$$\text{Cos} 17° = \frac{WX}{34}$$

$34 (\cos 17) = WX$

$32.5143 = WX$

$$\boxed{WX = 32.5}$$

$\text{Sin } 17 = \frac{WV}{34}$

$34 \sin 17 = WV$

$9.9406 = WV$ $\boxed{WV = 9.9}$

6.

$Um^2 + (2\sqrt{7})^2 =$

$Um^2 + 28 = 324$

$Um^2 = 296$

$$\boxed{Um = 2\sqrt{74} \approx 17.2}$$

$\sin U = \frac{2\sqrt{7}}{18}$

$2^{nd} \sin (2\sqrt{7}/18) = U$

$17.0959 = U$

$$\boxed{\angle U = 17°}$$

$\cos \angle B = \frac{2\sqrt{7}}{18}$

$2^{nd} \cos (2\sqrt{7}/18) = B$

$72.9040 = B$

$$\boxed{\angle B = 73°}$$

7. The angle of depression from the tee box to the green is 10° on a par 3, 185 yard hole. How much higher is the tee box than the green? Round to the nearest yard.

$$\text{Tan } 10° = \frac{x}{185}$$

$185 \text{ Tan } 10° = x$

$32.6204 = x$

$$\boxed{33 \text{ yds.} = x}$$

Not drawn to scale
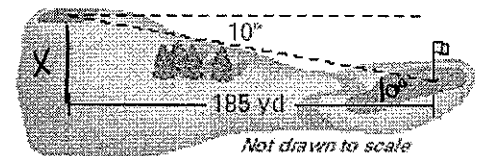
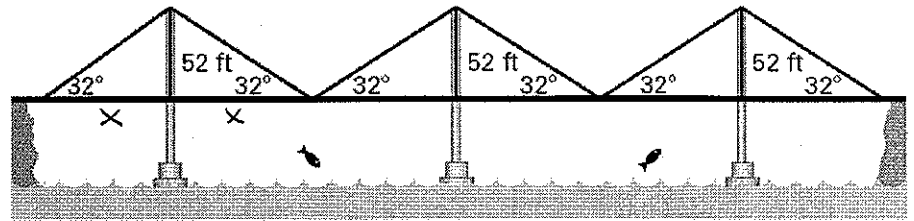$$\boxed{\text{The tee box is 33 yards higher than the green.}}$$

8. Find the distance across the suspension bridge. (rounded to the nearest 10th)

$$\text{Tan } 32° = \frac{52}{x}$$

$$x = \frac{52}{\text{Tan } 32°}$$

$$x = 83.2174$$

$$x = 83.2$$

52 ft   52 ft   52 ft

32°   32°   32°   32°   32°   32°

x   x

Bridge length = 6x
= 6(83.2)

Bridge length = 499.2 ft

9. You are in a hot air balloon that is 600 feet above the ground where you can see 2 people.

A) If the angle of depression from your line of sight to the person at *B* is 30°, how far is the person from the point on the ground below the hot air balloon?
(exact and rounded to the nearest 10th)

600   60°

30°

$600\sqrt{3} \approx 1039.2$ B

OR

$$\text{Tan } 30° = \frac{600}{x}$$
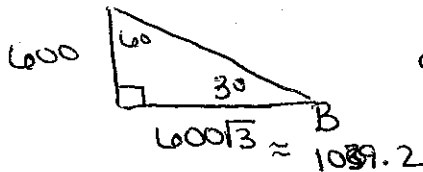
$$x = \frac{600}{\text{Tan } 30°}$$

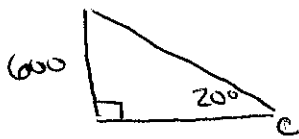$$x \approx 1039.2$$

1039.2 ft

exact $600\sqrt{3}$ ft

B) If the angle of depression from your line of sight to the person at *C* is 20°, how far is the person from the point on the ground below the hot air balloon?
(Rounded to the nearest 10th)

600   20°   C

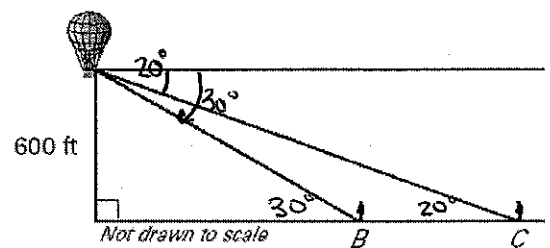$$\text{Tan } 20° = \frac{600}{y}$$

$$y = \frac{600}{\text{Tan } 20°}$$

$$y \approx 1648.486 \qquad y \approx 1,648.5 \text{ ft}$$

1,648.5 ft

C) How far apart are the two people?

$$1,648.5 - 1039.2 = 609.3$$

609.3 ft apart

20°
30°

600 ft

30°   20°
Not drawn to scale   B   C