Kuta Software - Infinite Algebra 1

Name __Key__

Using Trigonometry To Find Lengths

Date_____ Period____

Find the missing side. Round to the nearest tenth.

1)

5.1 $\tan 27 = \dfrac{x}{10}$

2)

$\tan 25 = \dfrac{x}{10}$

4.7

3)

$\cos 39 = \dfrac{x}{7}$

5.4

4)

$\sin 46 = \dfrac{8}{x}$

11.1

5)

(2.5) $\tan 23 = \dfrac{x}{6}$

6)

$\tan 46 = \dfrac{7}{x}$

(6.8)

7)

(61.6)

$\tan 72 = \dfrac{x}{20}$

8)

(7.1)

$\cos 54 = \dfrac{x}{12}$

9)

12.2

10)

6.0

11)

25.6

12)

68.9

13)

5.0

14)

12.9

15)

12.7

16)

15.0

17)

50.7

18)

61.5

-1-

-2-

Kuta Software - Infinite Geometry
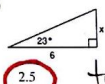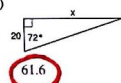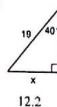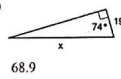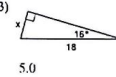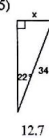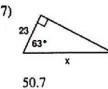
Name **KEY**

Date_____ Period____

Inverse Trigonometric Ratios

Find each angle measure to the nearest degree.

1) $\sin B = 0.4848$

29°

2) $\sin A = 0.5150$

31°

3) $\cos A = 0.7431$

42°

4) $\cos W = 0.6157$

52°

5) $\cos A = 0.5878$

54°

6) $\tan W = 19.0811$

87°

7) $\cos A = 0.4226$

65°

8) $\tan W = 0.5317$

28°

Find the measure of the indicated angle to the nearest degree.
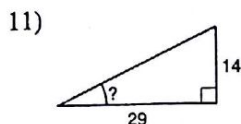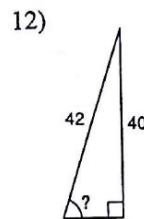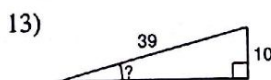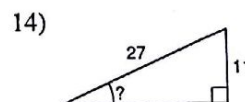
9)

$\tan\theta = \dfrac{27}{38}$

A 35° = θ

10)

23°

11)

26°

12)

72°

13)

15°

14)

24°

-1-
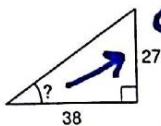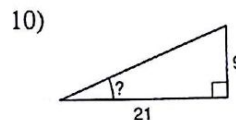
Unit 4 Day 3 AFM Notes: Finding Degree Measurements
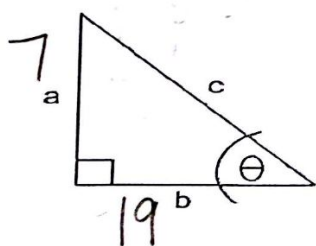
<u>Finding Degree Measurements</u>

- Determine the trig ratio that uses your given information.

- Calculator Time!

Make sure your calculator is in DEGREE mode

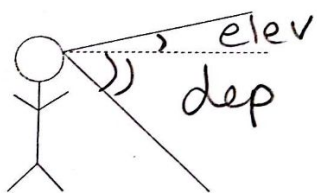Press 2nd → trig ratio used → ratio → ENTER.

EX.

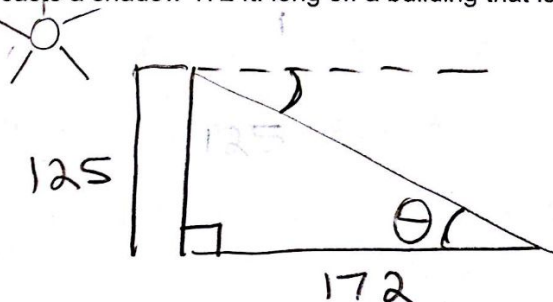1. Find the $m\angle\theta$ if a = 7, b = 19.

$$\tan\theta = \frac{7}{19}$$
$$20°$$

<u>Angle of Elevation/Depression</u>

elev
dep

1. The sun casts a shadow 172 ft. long off a building that is 125 ft. tall. What is the angle of depression of the sun?

$$\tan\theta = \frac{125}{172}$$
$$\theta = 36°$$

125

172

2. Mike is taking a picture of a building. The angle of elevation from his camera to the top of the building is 22°. If his camera is 5ft off the ground and he is standing 300 ft from the building, how tall is the building?
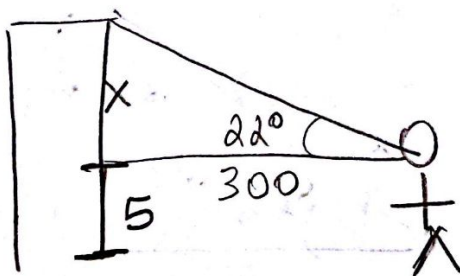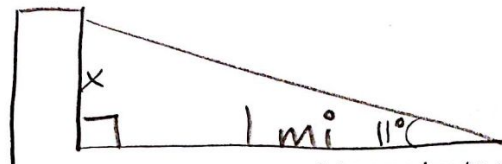
$$\tan 22 = \frac{X}{300}$$
$$X = 121.2 + 5$$
$$126.2 ft$$

X
22°
300
5

Unit 5 Day 3 - Angle of Elevation and Depression

1. The angle of elevation to the top of the Empire State Building in New York is found to be 11° from the ground at a distance of 1 mile from the base of the building. Using this information, find the height of the building.
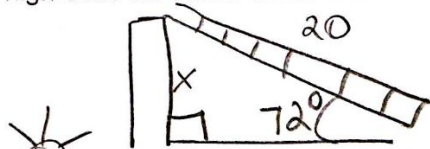
$$\tan 11 = \frac{x}{1}$$

.2 miles or

1026 ft

2. From the top of a 200-ft lighthouse, the angle of depression to a ship in the ocean is 23°. How far is the ship from the base of the lighthouse?
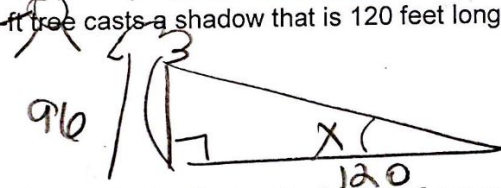
$$\tan 23 = \frac{200}{x}$$

$x =$ 471.2 ft
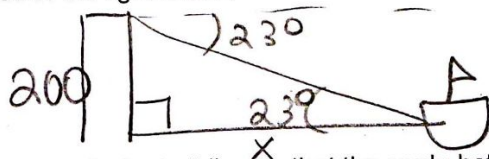
3. A 20-ft ladder leans against a building so that the angle between the ground and the ladder is 72°. How high does the ladder reach on the building?
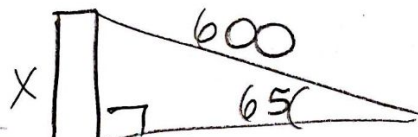
$$\sin 72 = \frac{x}{20}$$

19.0 ft

4. A 96-ft tree casts a shadow that is 120 feet long. What is the angle of elevation to the sun?

$$\tan x = \frac{96}{120}$$

39°

5. A 600-ft guy wire is attached to the top of a communication tower. If the wire makes an angle of 65° with the ground, how tall is the communication tower?

$$\sin 65 = \frac{x}{600}$$

$x = 543.8$ ft

6. A man is lying on the beach flying a kite. He holds the end of the kite string at ground level and estimates the angle of elevation of the kite to be 50°. If the string is 450 feet long, how high is the kite above the ground?
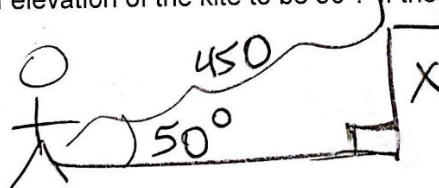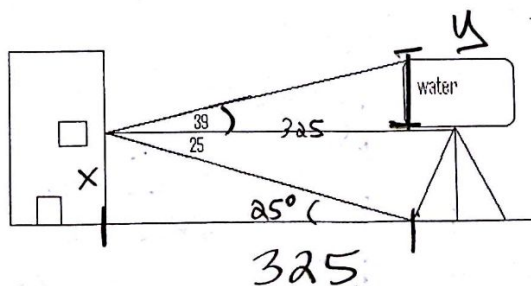
$$\sin 50 = \frac{x}{450}$$

344.7 ft

7. A water tower is located 325 feet from a building. From a window in the building it is observed that the angle of elevation to the top of the tower is 39° and the angle of depression to the bottom of the tower is 25°. (see the figure below)
   a. How tall is the tower?
   b. How high is the window?

$$\tan 25 = \frac{x}{325}$$

$$x = 151.5$$

$$\tan 39 = \frac{y}{325}$$

263.2

a) 414.7 ft

b) 151.5 ft