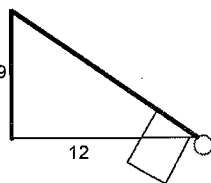


1) The diagonal of a square measures 18 meters.  
 What is the perimeter of the square?

$36\sqrt{2}$  meters

2) A flagpole has cracked 9 feet from the ground and has fallen. The top of the flagpole hit the ground 12 feet from the base. How tall was the flagpole before it fell?



24 feet

**Decide if the measures can be the side lengths of a triangle. If so, classify the triangle as acute, obtuse or right.**

3) 10, 12, 16

obtuse

4) ~~5, 6, 10~~ ~~5, 6, 13~~

Acute

5) 1.5, 2, 2.5

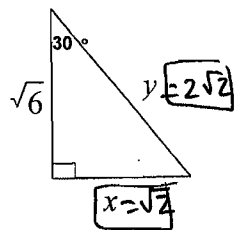
Right

6) 6, 8, 11

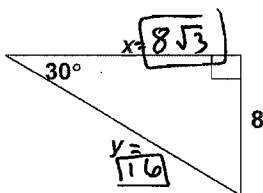
Obtuse

**Find all the missing sides of each figure.**

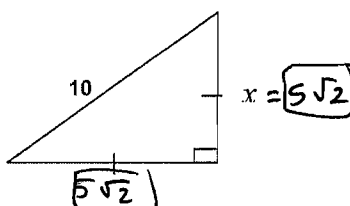
7)



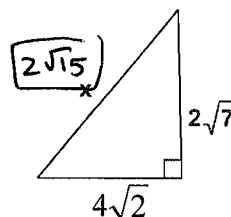
8)



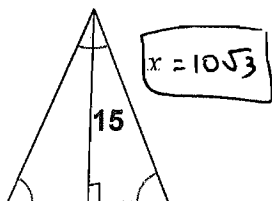
9)



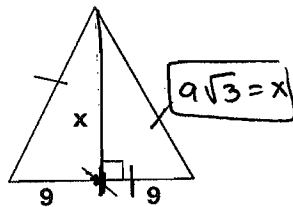
10)



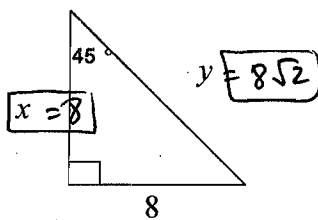
11)



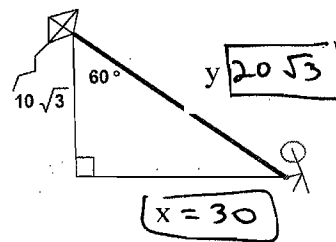
12)



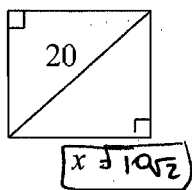
13)



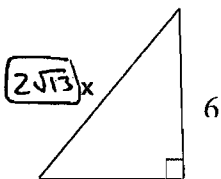
14) Find the length of the string



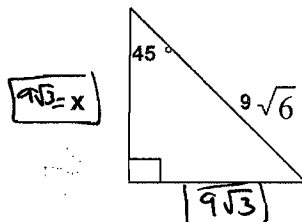
15)



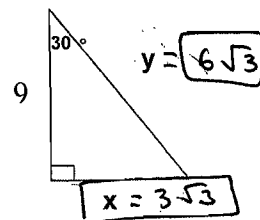
16)



17)



18)



**Simplify Radicals**

19)  $(5x\sqrt{18y^4})(2y\sqrt{5xy^5})$

20)  $\frac{4c\sqrt{27bc^3}}{\sqrt{2c^2}}$

21) Rationalize,  $\frac{5}{\sqrt{5}}$

22)

$\sqrt{50}, \sqrt{150}, 10\sqrt{2}$   
 30-60-90

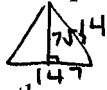
23)

$2\sqrt{4}, \sqrt{16}, 2\sqrt{8}$   
 45-45-90

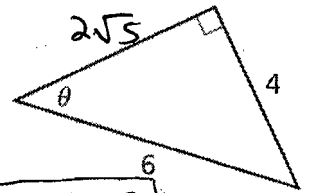
24)

$2\sqrt{3}, 2\sqrt{6}, 4$   
 Neither

25) If the perimeter of an equilateral triangle is 42 inches, what is the area of the triangle?



$$\frac{14(7\sqrt{3})}{2} = 49\sqrt{3} \text{ in}^2 = A$$



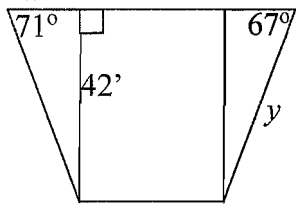
26) Identify all the trig three main functions and missing side of  $\theta$ .

$$\sin \theta = \frac{2}{3} \quad \cos \theta = \frac{\sqrt{5}}{5} \quad \tan \theta = \frac{2\sqrt{5}}{5}$$

$$\sin \theta = \frac{2}{3} \quad \sin^{-1}\left(\frac{2}{3}\right) = 41.8103$$

**Solve each problem. You will need to use your own paper. Please remember to round side lengths to 2 decimal places and angles to the nearest degree.** (but test it will be 4 decimal places)

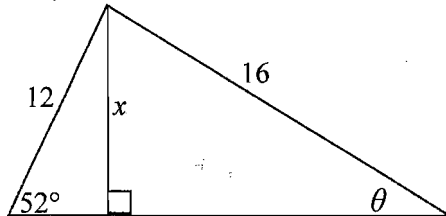
27) Find  $x$  and  $y$



$$x = 14.46 \\ y = 45.63$$

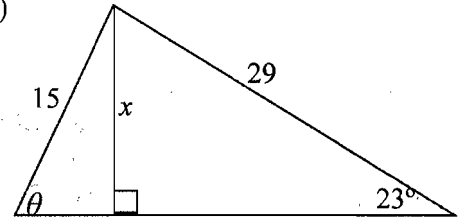
Solve for  $x$ .

28)



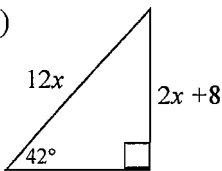
$$x = 9.46 \\ \theta = 36^\circ$$

29)



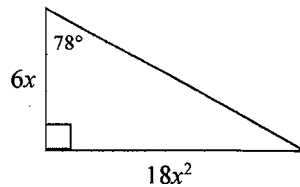
$$x = 11.33 \\ \theta = 49^\circ$$

30)



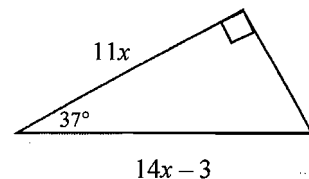
$$x \approx 1.33$$

31)



$$x \approx 1.57$$

32)



$$x \approx 3.31$$

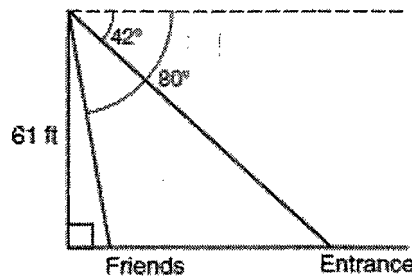
33) A tree casts a shadow of 28 m. The elevation of the sun is  $49^\circ$ . How tall is the tree?

$$x \approx 20.71 \text{ m}$$

34) Shane is 61 feet high on a ride at an amusement park. The angle of depression to the park entrance is  $42^\circ$ , and the angle of depression to his friends standing below is  $80^\circ$ . How far from the entrance are his friends standing?

$$\tan 42 = \frac{61}{x} \quad \tan 80 = \frac{61}{y}$$

$$x - y = 56.99 \text{ ft.}$$



35) A 30 foot tree broke from its base and fell against a house. If the tree hit the house 18 feet above the ground, what angle is the tree forming with the house?  $\theta = 53^\circ$

36) Lauren is at the top of a 15 m lookout tower. From an angle of depression of  $25^\circ$ , she sees Evan coming toward her. How far is Evan from the base of the tower?  $x = 32.17 \text{ m}$

37) Rosalinda has a rocket that can travel 1500 feet before exploding. On the 4<sup>th</sup> of July, she lights the rocket at an elevation of  $75^\circ$ . How high will the rocket be when it explodes?  $x = 1448.89 \text{ ft}$

38) Mark has two sticks, 25 in. and 20 in. If he places them end to end perpendicularly, what two acute angles would be formed when he added the hypotenuse?  $51^\circ$  and  $39^\circ$

