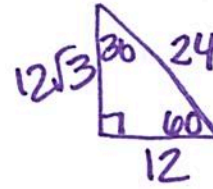


1. Is it possible to build a triangle with the given side lengths?

$ST = \sqrt{29}, TU = 2\sqrt{7}, SU = 13.9$
 $5.385 \quad 5.292$
NO

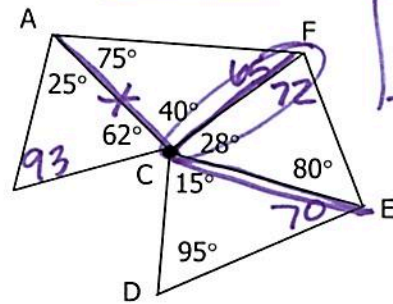
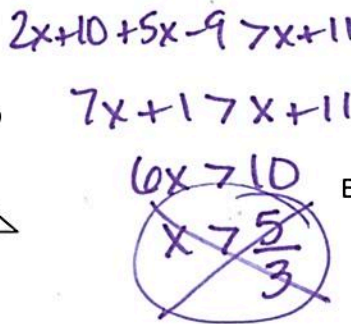
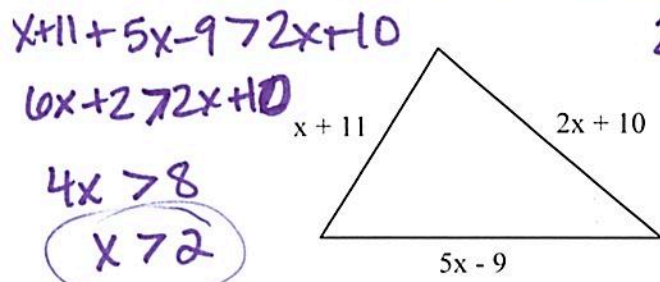
2. The hypotenuse of a 30-60-90 triangle is 24. Find the perimeter of the triangle.



$P = 36 + 12\sqrt{3}$
 or
 56.785

3. Find the range of possible values for x :

4. Find the Longest Side.



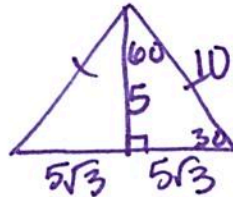
CF

$x+11 + 2x+10 > 5x-9$
 $3x+21 > 5x-9$
 $30 > 2x$
 $15 > x$

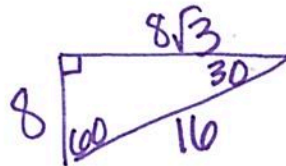
$2 < x < 15$

5. The vertex angle of an isosceles triangle is 120° . The altitude from the vertex is 5 cm long. What is the length of a leg (l) and the base (b) of the triangle?

$l = 10$
 $b = 10\sqrt{3}$

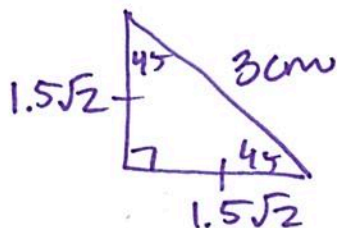


6. Universal Sporting Goods sells pennants in the shape of $30^\circ-60^\circ-90^\circ$ triangles. The length of the longest side of each pennant is 16 inches. What is the perimeter of the pennant?



$P = 24 + 8\sqrt{3}$
 or
 37.856

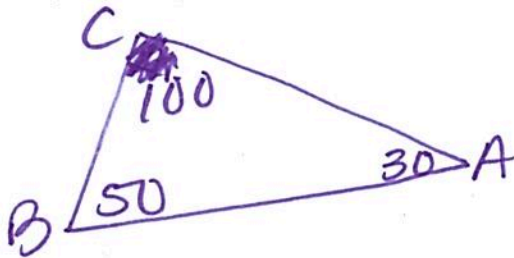
7. Baked pita chips are often in the shape of $45^\circ-45^\circ-90^\circ$ triangles. Caitlyn determines that the longest side of a pita chip in one bag measures 3 centimeters. What is the area of the pita chip?



$$A = \frac{1}{2} (1.5\sqrt{2})(1.5\sqrt{2})$$

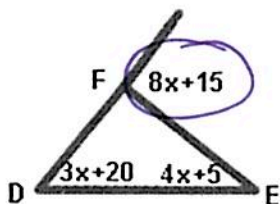
$$A = 2.25\text{cm}^2$$

8. In triangle ABC, $m\angle A = 30^\circ$ and $m\angle B = 50^\circ$. Which is the longest side of the triangle?



\overline{AB}

9. Find the value of x.



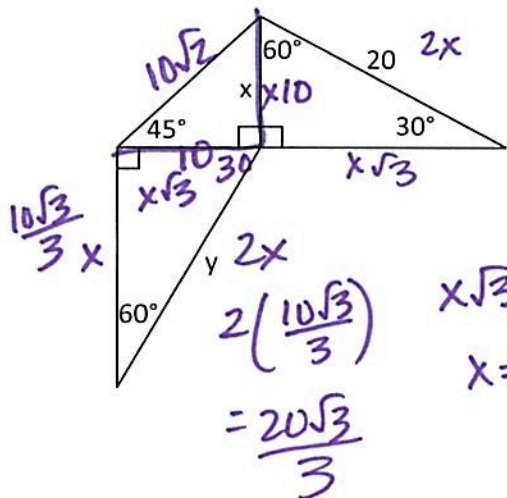
Ex \neq Thm:

$$8x+15 = 3x+20 + 4x+5$$

$$8x+15 = 7x+25$$

$$x = 10$$

10. Find the value of x and y.



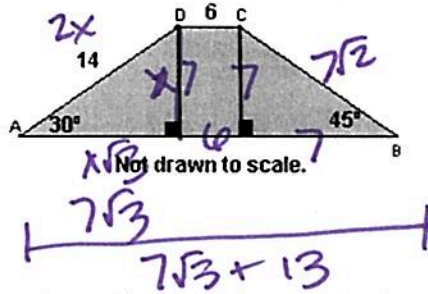
$$x = 10$$

$$y = \frac{20\sqrt{3}}{3}$$

$$x\sqrt{3} = 10$$

$$x = \frac{10\sqrt{3}}{3}$$

11. The short base is 6 units. Find the number of units in the longer base.



$$7\sqrt{3} + 13$$

or

$$25.124$$

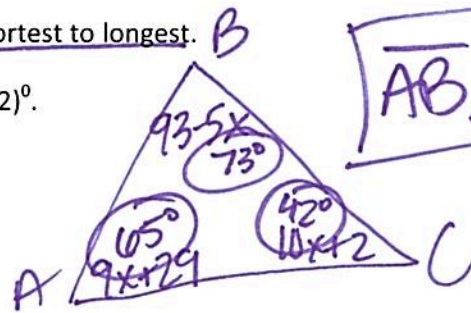
12. Find the value of x and list the sides in order from shortest to longest.

$$m\angle A = (9x+29)^\circ, m\angle B = (93-5x)^\circ \text{ and } m\angle C = (10x+2)^\circ.$$

$$180 = 14x + 124$$

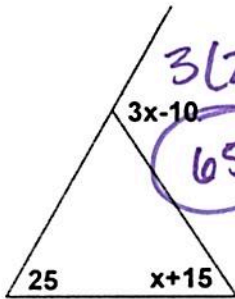
$$56 = 14x$$

$$x = 4$$



$$\overline{AB}, \overline{BC}, \overline{AC}$$

13. Find x and the measure of the exterior angle shown.



$$3(25) - 10$$

$$3x - 10$$

$$3x - 10 = 25 + x + 15$$

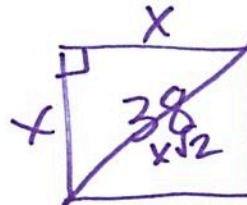
$$3x - 10 = x + 40$$

$$2x = 50$$

$$x = 25$$

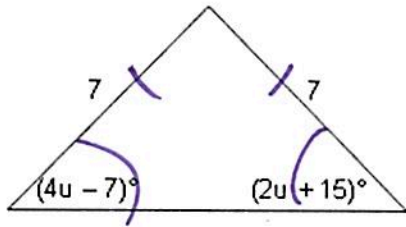
14. A square park has a diagonal walkway from one corner to another. If the walkway is about 38 yards long, what is the length of each side of the park?

$$\frac{38\sqrt{2}}{2} = \frac{\sqrt{2}}{\sqrt{2}} \cdot \frac{38}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$$



$$x = 19\sqrt{2}$$

15. Find the value of u .

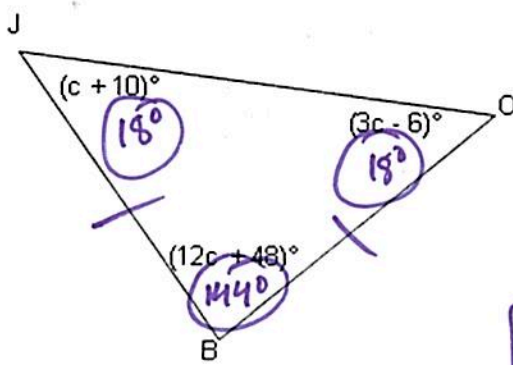


$$4u - 7 = 2u + 15$$

$$2u = 22$$

$$u = 11$$

16. Find the value of c and classify the triangle by its angles and sides.



$$c + 10 + 3c - 6 + 12c + 48 = 180$$

$$16c + 52 = 180$$

$$16c = 128$$

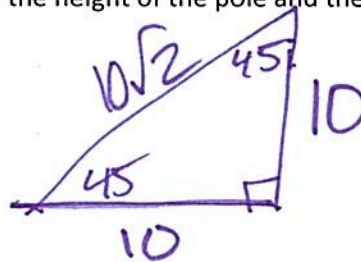
$$c = 8$$

Obtuse, isosceles

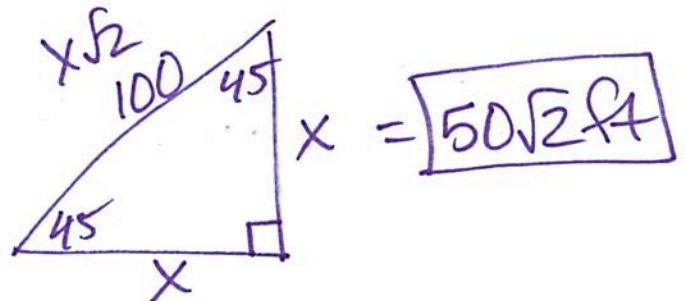
17. A wire is attached to the top of a pole and meets the ground 10 feet from the base of the pole. The wire makes a 45° angle with the ground. Find the height of the pole and the length of the wire.

$$\text{height} = 10 \text{ ft}$$

$$\text{Wire} = 10\sqrt{2} \text{ ft}$$



18. A kite string is 100 feet long from the kite to the ground. The string makes a 45° angle with the ground. About how high off the ground is the kite?



$$x = 50\sqrt{2} \text{ ft}$$