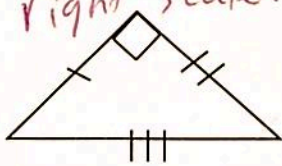
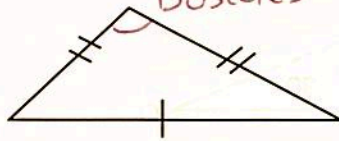
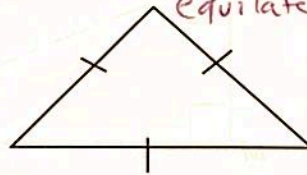
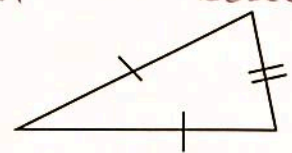


Name: Key

Class: _____

1. Classify the following triangles

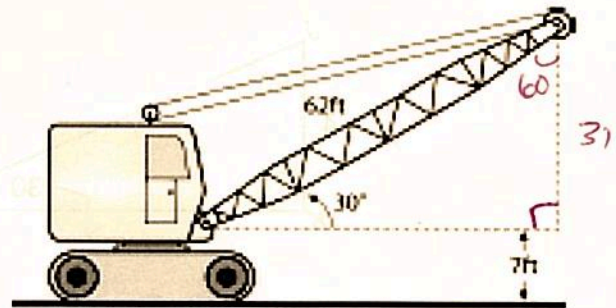
right scalene*obtuse isosceles**equilateral**acute isosceles*

2. The arm of a steel crane is 62 feet long. When it is fully extended, the crane arm forms a
- 30°
- angle with a line parallel to the ground. How many feet above the ground is the top of the crane?

$$\frac{1}{x} = \frac{\sqrt{3}}{62} \quad \frac{2}{62}$$

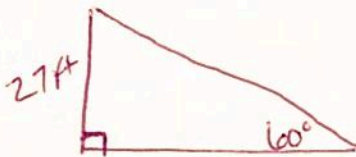
$$x = 31 + 7$$

$$\boxed{38 \text{ ft}}$$



3. A cable for a 27 foot tall power transformer forms a
- 60°
- with the ground.

A) Draw a picture of this situation.

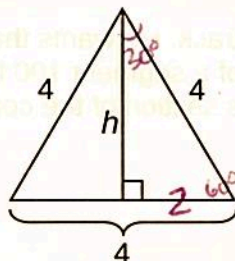


B) How long is the cable?

$$\frac{\sqrt{3}}{27} = \frac{2}{x} \quad x = \frac{54}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$$

$$\frac{54\sqrt{3}}{3} = \boxed{18\sqrt{3}}$$

- 4.

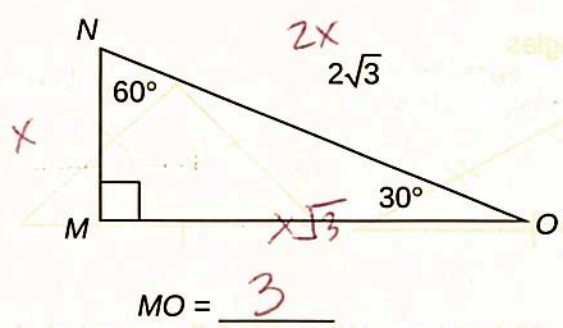


$$h = \boxed{2\sqrt{3}}$$

$$\frac{\sqrt{3}}{2} = \frac{2}{4} \quad = \frac{4\sqrt{3}}{2}$$

$$= \boxed{2\sqrt{3}}$$

5.

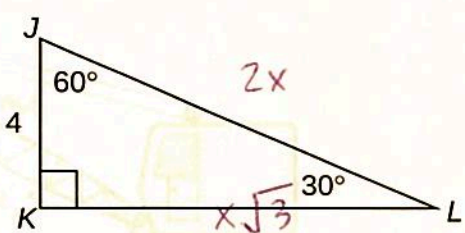


$$\frac{1}{x} = \frac{\sqrt{3}}{2\sqrt{3}}$$

$$\frac{2}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$$

MO = 3

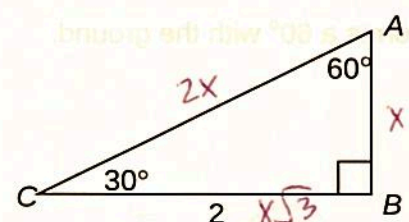
6.



$$\frac{1}{4} = \frac{\sqrt{3}}{x}$$

KL = 4√3

7.



$$\frac{1}{x} = \frac{\sqrt{3}}{2}$$

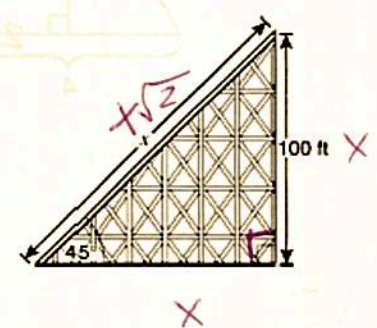
$$\frac{2}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$$

AB = $\frac{2\sqrt{3}}{3}$

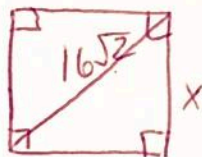
AC = $\frac{4\sqrt{3}}{3}$

8. Matt wants to design the first section of a roller coaster track. He wants the ramp section to rise at 45° with the horizontal and connect at the top of a segment 100 feet high. Find x , the length of the ramp that Matt needs to complete his section of the coaster track? (Leave answer in simplest radical form.)

$100\sqrt{2}$

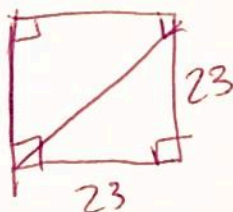


9. A square has a diagonal of $16\sqrt{2}$ inches. How long is each side of the square?



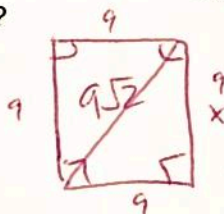
$$16 \text{ in}$$

10. A square has side lengths of 23 inches. How long is each diagonal? (Leave answer in simplest radical form.)



$$23\sqrt{2} \text{ in}$$

11. Sam's square bedroom has a diagonal of $9\sqrt{2}$ feet. What is the perimeter of Sam's square bedroom?

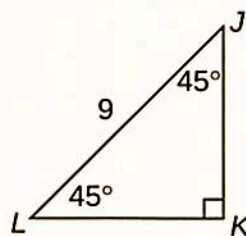


$$x = 9$$

$$9(4) =$$

$$36 \text{ ft}$$

12.

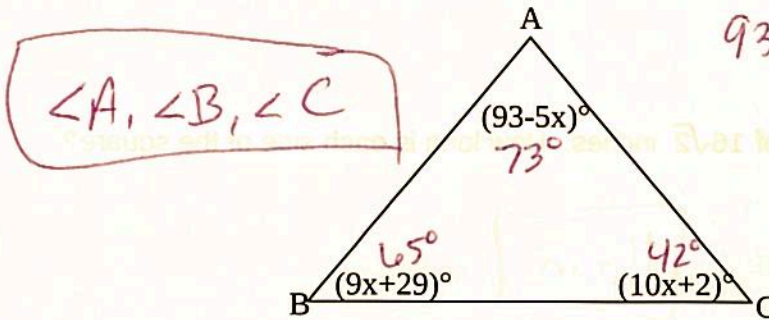


$$JK = \frac{9\sqrt{2}}{2}$$

$$KL = \frac{9\sqrt{2}}{2}$$

$$\frac{9}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{9\sqrt{2}}{2}$$

13. Find the value of x and list the angles in order from greatest to least.



$$93-5x+9x+29+10x+2=180$$

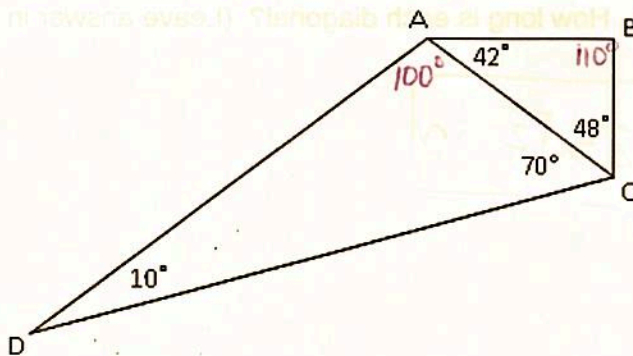
$$14x+124=180$$

$$14x=56$$

$$x=4$$

14. List the sides from shortest to longest.

\overline{BC} , \overline{AB} , \overline{AC} , \overline{AD} , \overline{DC}



15. Do the following side lengths form a triangle?

a. 8 10 12

yes

$$8+10>12$$

$$10+12>8$$

b. 12 32 44

no

$$12+32>44$$

$$44>44 \times$$

c. 1254 2314 3150

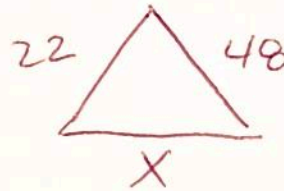
yes

$$1254+2314>3150$$

$$3568>3150 \checkmark$$

16. 22 feet, 48 feet and X feet are the sides of a triangle. Using an Inequality, what numbers can my missing side be?

$$\underline{26} < X < \underline{70}$$



$$22 + X > 48$$

$$X > 26$$

$$22 + 48 > X$$

$$70 > X$$

17. 104 feet, 75 feet and X feet are the sides of a triangle. Using an Inequality, what numbers can my missing side be?

$$\underline{29} < X < \underline{179}$$



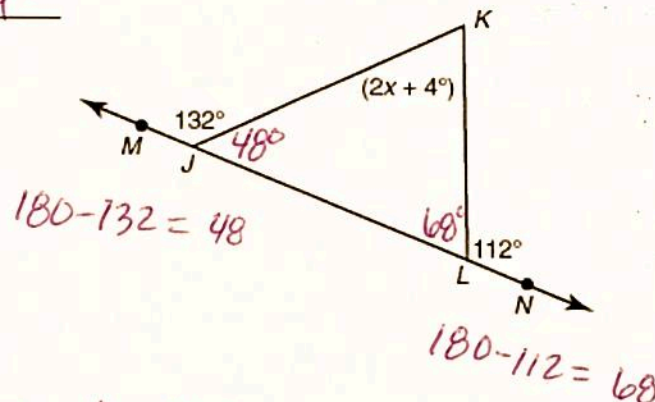
$$75 + X > 104$$

$$X > 29$$

$$75 + 104 > X$$

$$179 > X$$

18. Find Angle K 64°



$$48 + 68 + 2x + 4 = 180$$

$$2x + 120 = 180$$

$$2x = 60$$

$$x = 30$$

$$\angle K = 2(30) + 4$$

$$= 64$$

