

Name: KEY Date: _____ Period: _____

Using Similar Figures

Scale Drawings:

1. An artist makes a scale drawing of a new lion enclosure at the zoo. The scale is 1 in : 25 ft. On the drawing, the length of the enclosure is 7.25 inches. What is the actual length of the lion enclosure?

$$\frac{1}{25} = \frac{7.25}{x}$$

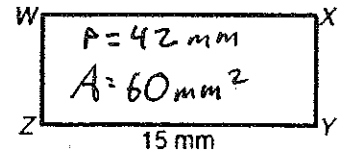
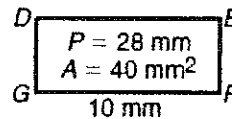
181.25 in
or
15.10 ft

Given that $DEFG \sim WXYZ$, find each of the following.

2. Perimeter of WXYZ.

$$\frac{10}{15} = \frac{28}{x} \quad \frac{420}{10} = \frac{10x}{10}$$

$$x = 42 \text{ mm}$$



3. Area of WXYZ

$$\frac{10}{15} = \frac{40}{x} \quad \frac{600}{10} = \frac{10x}{10}$$

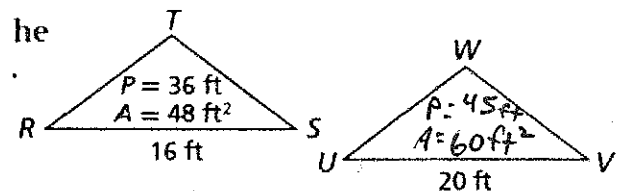
$$x = 60 \text{ mm}^2$$

Given that $\triangle RST \sim \triangle UVW$. Find each of the following.

4. Perimeter of UVW:

$$\frac{16}{20} = \frac{36}{x}$$

$$\frac{16x}{16} = \frac{720}{16} \quad x = 45 \text{ ft}$$



5. Area of UVW:

$$\frac{16}{20} = \frac{48}{x}$$

$$\frac{16x}{16} = \frac{960}{16}$$

$$x = 60 \text{ ft}^2$$

6. An Olympic standard swimming pool is a rectangle that measures 50 meters in length and 25 meters in width. Make a scale drawing of an Olympic standard swimming pool, using a scale of 1 in. : 10 m.

Set up and solve proportions to find the length and width of the pool in the scale drawing.

Length = 5 in

Width = 2.5 in

Using Similar Figures

7. To find the height of a statue, Ezequiel placed a mirror on the ground 40 ft from its base. Then he stepped back 4 ft so that he could see the top of the statue in the mirror. Ezequiel's eyes are approximately 5.5 ft above the ground. What is the height of the statue? Hint: Draw a picture.

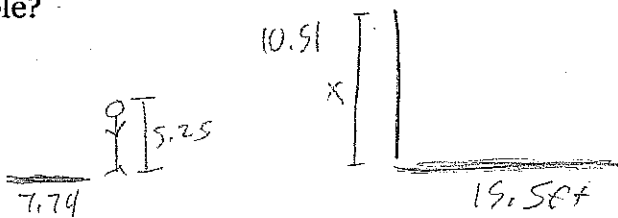
$$\frac{40}{4} = \frac{x}{5.5}$$

$$\frac{220}{4} = \frac{4x}{4}$$

$$x = 55 \text{ ft}$$

95

8. Maribel is 5.25 ft tall. To find the height of a light pole, she measured her shadow and the pole's shadow. The length of the light pole's shadow is 15.5 ft, and Maribel's shadow is 7.74 ft. What is the height of the pole?

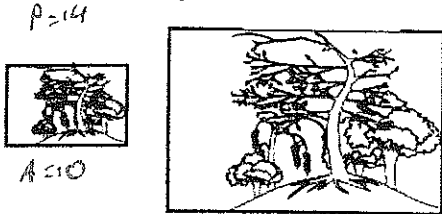


$$\frac{81.375}{7.74} = \frac{7.74x}{7.74}$$

$$\frac{5.25}{7.74} = \frac{x}{15.5}$$

$$x = 10.51 \text{ ft}$$

The two photos shown are similar rectangles. The perimeter of the smaller photo is 14 centimeters and its area is 10 square centimeters. If the perimeter of the larger photo is 42 cm, what is the area of the larger photo?



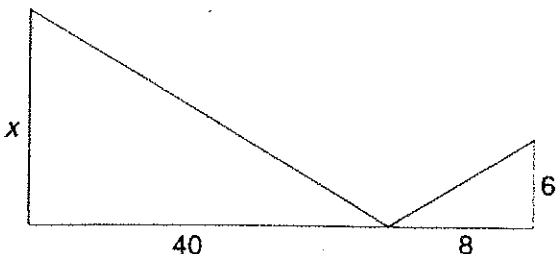
$$\frac{14}{42} = \frac{10}{x}$$

$$420 = 14x$$

$$\frac{420}{14} = \frac{14x}{14} \quad x = 30 \text{ cm}^2$$

- A 3 cm²
- B 30 cm²**
- C 38 cm²
- D 90 cm²

4. Use the diagram to find the value of x if both triangles are right triangles and the top angles of the two triangles are equal.

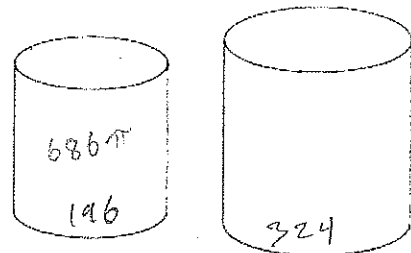


$$\frac{x}{6} = \frac{40}{8}$$

$$\frac{240}{6} = \frac{8x}{8} \quad x = 30$$

- F 30**
- G 32
- H 38
- J 50

The two cylinders shown are similar. The lateral areas of the cylinders are 196π square centimeters and 324π square centimeters.



The volume of the smaller cylinder is 686π cubic centimeters. What is the volume of the larger cylinder?

- F $814\pi \text{ cm}^3$
- G $882\pi \text{ cm}^3$
- H $1,134\pi \text{ cm}^3$**
- J $1,458\pi \text{ cm}^3$

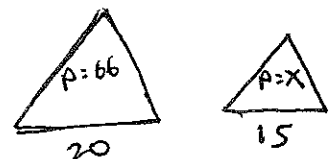
$$\frac{324}{196} = \frac{x}{686}$$

$$\frac{196x}{196} = \frac{222,264}{196}$$

$$x = 1134\pi \text{ cm}^3$$

A triangle has a base of length 20 units and a perimeter of 66 units. If a similar triangle has a base of 15 units, what is its perimeter?

- F 49.5 units**
- G 51 units
- H 56 units
- J 61 units



$$\frac{20}{15} = \frac{66}{x} \quad 990 = 20x \quad x = 49.5$$