

Geometry

Chapter 10

Section 10-4

May 13-10:02 PM

A rectangle is 6 cm long and 10 cm wide.

Write down the dimensions of three rectangles similar (and not congruent) to this rectangle.

Find the perimeters and areas of the original rectangle as well as your other three rectangles.

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Dimensions		Perimeter	Area
6 cm	10 cm	32 cm	60 cm ²
3 cm	5 cm	16 cm	15 cm ²
.6 cm	1 cm	3.2 cm	.6 cm ²
60 cm	100 cm	320 cm	6000 cm ²
12 cm	20 cm	64 cm	240 cm ²
9 cm	15 cm	48 cm	135 cm ²
.3 cm	.5 cm	1.6 cm	.15 cm ²
1.2 cm	2 cm	6.4 cm	2.4 cm ²
15 cm	25 cm	80 cm	375 cm ²

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Theorem 10-7 Perimeters and Areas of Similar Figures

If the scale factor of two similar figures is $\frac{a}{b}$, then

(1) the ratio of their perimeters is $\frac{a}{b}$ and

(2) the ratio of their areas is $\frac{a^2}{b^2}$.

(cm)
(cm)
(cm²)

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$ABCD \sim KLMN$

What is the scale factor from ABCD to KLMN?

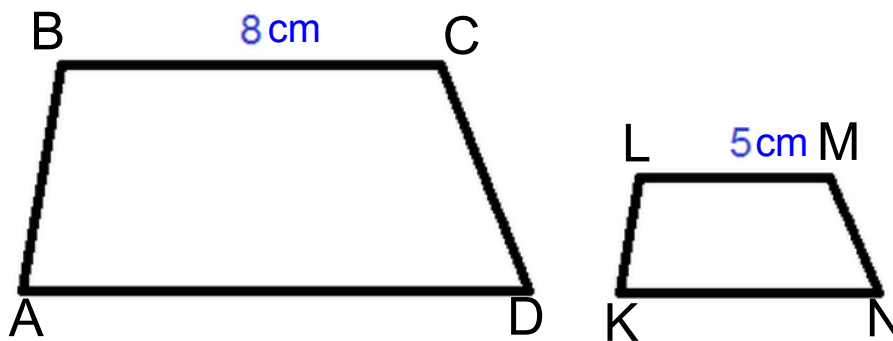
8:5

What is the ratio of the perimeters of ABCD to KLMN?

8:5

What is the ratio of the areas of ABCD to KLMN?

64:25



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$RLFTN \sim GJSUZ$

What is the scale factor from RLFTN to GJSUZ?

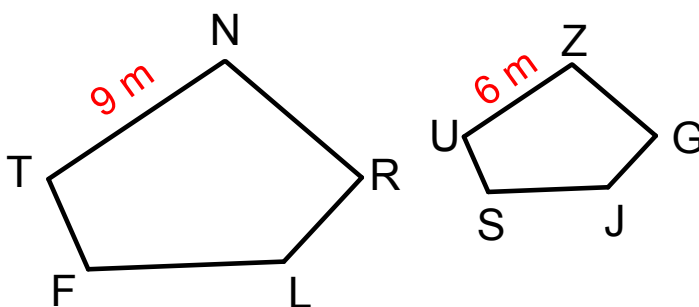
9:6 \longrightarrow 3:2

What is the ratio of the perimeters of RLFTN to GJSUZ?

3:2

What is the ratio of the areas of RLFTN to GJSUZ?

9:4



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The scale factor of two similar polygons is 3:5. The larger polygon has an area of 115 cm². What is the area of the smaller polygon?

$$\frac{3^2}{5^2} = \frac{9}{25} \quad \times \quad \frac{x}{115}$$

$$25x = 9(115)$$

$$25x = 1035$$

$$x = \frac{1035}{25}$$

$$x = 41.4 \text{ cm}^2$$

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The ratio of the areas of two similar triangles is 36:49. The smaller polygon has a perimeter of 21 feet. What is the perimeter of the larger polygon?

$$\sqrt{\frac{36}{49}} = \frac{6}{7} \quad \times \quad \frac{21}{x}$$

$$\frac{6x}{6} = \frac{147}{6}$$

$$x = 24.5 \text{ ft}$$

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Homework

Pages 638 - 639

9 - 16 all, 20 - 30 even, 34, 36

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