

Use what you know about perimeter, area and scale factor to fill in the tables.

Original Dimensions	Original Perimeter	Original Area	Scale Factor SF	New Dimensions Original dimensions X SF	New Perimeter Original perimeter X SF	Scale Factor ²	New Area Original Area X SF ²
5 x 4	18	20	$144 \div 18 = 8$ 8	40 x 32	144	64	1280
4 x 4	16	16	1/4	1 x 1	4	1/16	1
3 x 11	28	33	7	21 x 77	196	49	1617

Original Dimensions	Original Perimeter	Original Area	Scale Factor SF	New Dimensions Original dimensions X SF	New Perimeter Original perimeter X SF	Scale Factor ²	New Area Original Area X SF ²
10 x 7	34	70	1.5	15 x 10.5	51	2.25	157.5
12 x 9	42	108	1/3	4 x 3	14	1/9	12
6 x 2	16	12	1/2	3 x 1	8	1/4	3

Original Dimensions	Original Perimeter	Original Area	Scale Factor SF	New Dimensions Original dimensions X SF	New Perimeter Original perimeter X SF	Scale Factor ²	New Area Original Area X SF ²
<u>7</u> x 1	16	7	3	21 x 3	48	9	63
<u>4</u> x 9	26	36	5	20 x 45	130	25	900
6.5 x <u>2</u>	17	13	3	19.5 x 6	51	9	117

Original Dimensions	Original Perimeter	Original Area	Scale Factor SF	New Dimensions Original dimensions X SF	New Perimeter Original perimeter X SF	Scale Factor ²	New Area Original Area X SF ²
1 x 1	4	1	5	5 x 5	20	25	25
1 x 2	6	2	6	6 x 12	36	36	72
10 x 2	24	20	4	40 x 8	96	16	320
② 4 x 5	18			16 x 20	72		

Pre-Algebra

Unit 10: Similar Figures

Lesson 10.5: Scales Drawings with Area

Name: Key

Hour: _____

1. Rectangle K has an area of 12 square units. Paul drew a scaled version of Rectangle k and labeled it Rectangle L. What scale factor did Paul use to go from Rectangle K to Rectangle L?

$$\begin{aligned} \text{Area of K} \times SF^2 &= \text{Area of L} \\ 12 \times X^2 &= 48 \\ X^2 &= 4 \\ X &= 2 \end{aligned}$$

SF = 2

2. A rectangle is 3 units by 2 units. It is scaled by a factor of 4. What is the area of the new rectangle?

$$\begin{aligned} \text{Area of Small} \times SF^2 &= \text{Area of Big} \\ 6 \times 4^2 &= X \\ 6 \times 16 &= X \\ 96 &= X \end{aligned}$$

96 units²

3. Polygon M is a scaled copy of Polygon L using a factor of 5. Polygon L is what fraction of Polygon M's area?

$$\begin{aligned} \text{Area of L} \times SF^2 &= \text{Area of M} \\ \times 5^2 &= \\ 6 \times 25 &= 150 \end{aligned}$$

SF = $\frac{1}{25}$

