

ME 2 Section 10.5: Scaling

Vocabulary: Scale Factor: If rectangle A has dimensions b and h , and rectangle B has dimensions kb and kh , k is the scale factor from A to B. (Also known as the constant rate of proportionality.)

Exploration 1: a) A quadrilateral with 4 right angles where opposite sides are equal & parallel.

b) (student answers may vary) Z, B, C, E, and G together

c) Z has sides of 2:3

B 4:6

C 6:9

E 8:12

G 10:15

Of the grouped rectangles, all have a ratio of sides of 2 to 3.

d)

Rectangle	Height	Base
Z	3	2
A	2	6
* B	4	6
* C	6	9
D	5	10
* E	8	12
F	7	9
* G	10	15

(*s have the same ratio)

e) They have the same ratio.

Problem 1:

P to R $\underline{\quad 2 \quad}$	R to T $\underline{\quad 2 \quad}$	T to T $\underline{\quad 1 \quad}$
R to P $\underline{\quad \frac{1}{2} \quad}$	P to T $\underline{\quad 4 \quad}$	T to P $\underline{\quad \frac{1}{4} \quad}$

- Exploration 2:
- a) student answers will vary
 - b) answers will vary
 - c) scale factors less than 1 go from larger figures to smaller figures

d) R: 4 by 8 and G: 6 by 12

$$\frac{6}{4} = \frac{4k}{4} \quad k = \boxed{\frac{3}{2} \text{ or } 1.5} \text{ is the scale factor}$$

e) 1 by 2

check by multiplying each dimension ^{of H} by 4 to get back to R.

f) 3 by 6

$$\frac{3}{4} = \frac{4k}{4}$$

scale factor $k = \boxed{\frac{3}{4}}$

Example 1: a) 2 cups for 3 people
(times 2)

$\textcircled{4}$ cups for 6 people

b) 2 cups: 3 people

$$\frac{3k}{3} = \frac{10}{3} \quad k = \frac{10}{3} \text{ is the scale factor}$$

$$2\left(\frac{10}{3}\right) = \frac{20}{3} = \boxed{6\frac{2}{3}} \text{ cups of milk}$$

c) 5 tablespoons chocolate & 2 cups milk

$$\frac{5k}{5} = \frac{7}{5}$$

$k = \frac{7}{5}$ is the scale factor

$$2\left(\frac{7}{5}\right) = \frac{14}{5} \text{ or } 2.8$$

Problem 2: M: 5 by 9

a) N: 3 by 5.4

b) P: 7.5 by 13.5


Problem 3: a) 3

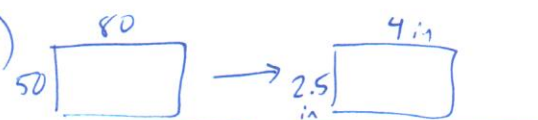
b) draw a 4 by 6 rectangle

c) $\frac{2}{3}$

d) $\frac{3}{2}$

e) they are reciprocals

Problem 4: a)  $60 \cdot 80 = 4800 \text{ mi}^2$

b)  4000 mi^2 $\text{Area: } 10 \text{ in}^2$ $2.5 \text{ in by } 4 \text{ in}$

Practice Exercises: 1) 4 in by 6 in to 10 ft by 15 ft
120 in

$$\frac{4k}{4} = \frac{120}{4}$$

$$k = 30$$

2) a) $\frac{1}{2}$ b) 2