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(TEACH N LEARN · PRIMARY 5)

*More challenging problems especially for advanced pupils.

EQUIVALENT RATIOS

Vocabulary

Equivalent Ratios Ratios that name the same comparison.

Example: 1 : 6, 2 : 12 and 3 : 18 are equivalent ratios.

$$1 : 6 = 2 : 12 = 3 : 18$$

1 : 6 is a ratio in its simplest form.

How To

To find equivalent ratios, we multiply or divide terms of ratio by the same number.

1. Express 6 : 4 in its simplest form.

$$6 : 4 \xrightarrow{\div 2} = 3 : 2$$

2 is a common factor of 6 and 4. So, divide 6 and 4 by 2.

2. What is the missing number in the equivalent ratio?

15 : 27 = ☐ : 9

$$15 : 27 \xrightarrow{\div 3} = ? : 9$$

27 ÷ 9 = 3
15 ÷ 3 = 5
The missing number is 5.

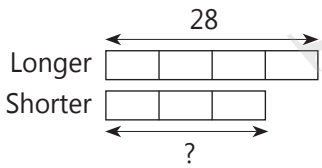
3. A piece of ribbon is cut into two in the ratio of 4 : 3. The longer piece is 28 cm long. What is the length of the shorter piece?

Method 1

$$4 : 3 \xrightarrow{\times 7} = 28 : ?$$

28 ÷ 4 x 3 = 21 cm

Method 2



4 units → 28
1 unit → 28 ÷ 4 = 7
3 units → 3 x 7 = 21

The shorter piece is 21 cm long.

Exercise 6.2 EQUIVALENT RATIOS

1. Write each ratio in its simplest form.

a) 12 : 4 = ☐ : ☐

b) 6 : 15 = ☐ : ☐

c) 30 : 24 = ☐ : ☐

d) 20 : 100 = ☐ : ☐

e) 63 : 36 = ☐ : ☐

f) 72 : 56 = ☐ : ☐

2. Complete the equivalent ratios.

a) 4 : 5 = ☐ : 30

b) 7 : 3 = 35 : ☐

c) 9 : 2 = ☐ : 10

d) 5 : 8 = 40 : ☐

e) 12 : ☐ = 36 : 21

f) ☐ : 11 = 27 : 99

3. Nelson spent 15 minutes doing his Mathematics homework and 2 hours doing his English homework. What is the ratio of the time he spent on Mathematics homework to the time he spent on English homework?

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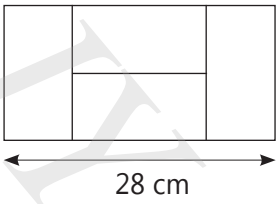
Exercise 6.5 CHALLENGES

*1. The figure is made up of 4 identical rectangles.
What is the area of the figure?



*2. The figure below is formed by two squares A and B.
The ratio of the unshaded area of Square A to the shaded area is 3 : 2.
The ratio of the unshaded area of Square B to the shaded area is 7 : 5.
The total area of the figure is 1170 cm^2.
What is the area of Square A?