

Ratios and Linear Functions

ANSWERS

1 y is always the same number of times x

$x : y = 1 : 3$. Complete the table and the rule.

x				
y				
x	1	2	5	10
y	3	6	15	30

$$y = 3x$$

2

$x : y = 1 : 4$. Complete the table and the rule.

x				
y				
x	1	3	6	10
y	4	12	24	40

$$y = 4x$$

3

$x : y = 1 : 2$. Complete the table and the rule.

x				
y				
x	1	4	7	20
y	2	8	14	40

$$y = 2x$$

4

$x : y = 1 : 5$. Complete the table and the rule.

x				
y				
x	1	2	6	9
y	5	10	30	45

$$y = 5x$$

5 Notice the change!

$x : y = 2 : 5$. Complete the table and the rule.

x				
y				
x	2	4	10	20
y	5	10	25	50

$$y = 2.5x$$

6

$x : y = 2 : 3$. Complete the table and the rule.

x				
y				
x	2	6	10	40
y	3	9	15	60

$$y = 1.5x$$

7

$y = 6x$. Complete the table, draw the bar model and write the ratio.

x				
y				
x	1	2	5	10
y	6	12	30	60

$$x : y = 1 : 6$$

8

$y = 8x$. Complete the table, draw the bar model and write the ratio.

x				
y				
x	1	3	5	11
y	8	24	40	88

$$x : y = 1 : 8$$

Ratios and Linear Functions further practice

ANSWERS

9

$x : y = 2 : 7$.

- (a) Write the rule $y = \square x$.
(b) Find y when $x = 12$.

$$7 \div 2 = 3.5, 3.5 \times 12$$

$$(a) y = 3.5x$$

$$(b) 42$$

10

$y = 6x$. Complete the table.

x	2	5	8
y	12	30	48

$$x = y \div 6$$

11

Write the ratio $x : y$ in its simplest form and the rule $y = \square x$.

x	4	8	20
y	5	10	25

$$5 \div 4 = 1.25$$

$$\text{Ratio } 4 : 5$$

$$\text{Rule } y = 1.25x$$

12

Blue paint and white paint are mixed in the ratio $b : w = 2 : 5$.

- (a) Write a rule for w in terms of b .
(b) How much white paint is mixed with 6 litres of blue paint?

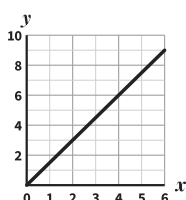
$$5 \div 2 = 2.5, 2.5 \times 6$$

$$(a) w = 2.5b$$

$$(b) 15 \text{ litres}$$

13

Write $x : y$ in its simplest form and the rule for this line.



the line passes through (2, 3)

$$\text{Answer } 2 : 3, y = 1.5x$$

14

Lemonade A is made from lemon juice and water in the ratio $1 : 4$.
Lemonade B uses the rule $w = 3.5j$, where j ml is the lemon juice and w ml is the water. Which lemonade tastes more of lemon? Explain.

$$A : w = 4j, 3.5 \text{ is less than } 4$$

Answer Lemonade B

15

The width and length of a rectangle are in the ratio $W : L = 2 : 5$.

- (a) Write a rule for L in terms of W .
(b) The width is 4 cm. Find the perimeter.

$$L = 2.5 \times 4 = 10 \text{ cm}, 10 + 4 + 10 + 4$$

$$(a) L = 2.5W$$

$$(b) 28 \text{ cm}$$

16

$x : y = 2 : 5$. Max says the rule is $y = x + 3$, because 5 is 3 more than 2. Is Max right? Explain.

$$\text{when } x = 4, y = 10, \text{ but } 4 + 3 = 7$$

Answer No, $y = 2.5x$