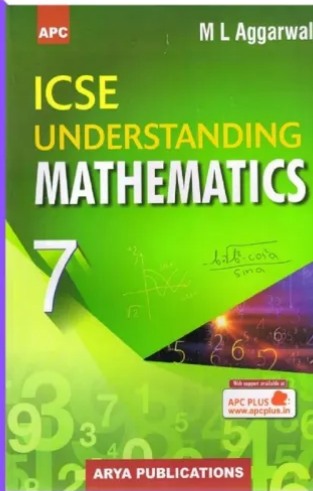


ML Aggarwal Solutions for Class 7 Maths

Chapter 6- Ratio and Proportion



ML Agrawal Solutions

CLASS 7 MATHS

Chapter 6: Ratio and
Proportion

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Chapter 6- Ratio and Proportion

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ML Aggarwal Solutions for Class 7 Maths Chapter 6- Ratio and Proportion

ML Aggarwal 7th Maths Chapter 6, Class 7 Maths Chapter 6 solutions

1. Express the following ratios in simplest form:

(i) $(1 / 6): (1 / 9)$

(ii) :

(iii) $(1 / 5): (1 / 10): (1 / 15)$

Solution:

(i) $(1 / 6): (1 / 9)$

Given

$$\text{Ratio} = (1 / 6): (1 / 9)$$

$$= (1 / 6) \div (1 / 9)$$

$$= (1 / 6) \times (9 / 1)$$

We get,

$$= 3 / 2$$

$$= 3: 2$$

(ii) $4\frac{1}{2}: 1\frac{1}{8}$

This can be written as,

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$$(9 / 2): (9 / 8)$$

$$\text{Given ratio} = (9 / 2): (9 / 8)$$

$$(9 / 2) \div (9 / 8)$$

$$= (9 / 2) \times (8 / 9)$$

We get,

$$= 4 / 1$$

$$= 4: 1$$

$$\text{(iii) } (1 / 5): (1 / 10): (1 / 15)$$

L.C.M. of 5, 10, 15 is 30

5	5	10	15
	1	2	3

$$\text{L.C.M.} = 5 \times 2 \times 3$$

$$= 30$$

$$= (1 / 5) \times 30: (1 / 10) \times 30: (1 / 15) \times 30$$

We get,

$$= 6: 3: 2$$

2. Find the ratio of each of the following in simplest form:

(i) Rs 5 to 50 paise

(ii) 3 km to 300 m

(iii) 9 m to 27 cm

(iv) 15 kg to 210 g

(v) 25 minutes to 1.5 hours

(vi) 30 days to 36 hours

Solution:

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(i) Rs 5 to 50 paise

$$= 500 \text{ paise} : 50 \text{ paise}$$

$$= 500 / 50$$

$$= 50 / 5$$

Dividing by 5, we get,

$$= 10 / 1$$

$$= 10 : 1$$

(ii) 3 km to 300 m

WKT

$$1 \text{ km} = 1000 \text{ m}$$

Hence,

$$3000 \text{ m} : 300 \text{ m}$$

$$= 3000 / 300$$

$$= 30 / 3$$

Dividing by 3, we get,

$$= 10 / 1$$

$$= 10 : 1$$

(iii) 9 m to 27 cm

WKT

$$1 \text{ m} = 100 \text{ cm}$$

Hence,

$$= 9 \times 100 \text{ cm} : 27 \text{ cm}$$

$$= (900 / 27) \text{ cm}$$

Dividing by 9, we get,

$$= 100 / 3$$

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$$= 100: 3$$

(iv) 15 kg to 210 g

WKT

$$1 \text{ kg} = 1000 \text{ g}$$

$$= 15 \times 1000 \text{ g}: 210 \text{ g}$$

$$= 15000: 210$$

$$= (1500 / 21) \text{ g}$$

Dividing by 30, we get,

$$= 500 / 7$$

$$= 500: 7$$

(v) 25 minutes to 1.5 hours

$$= 25 \text{ minutes}: (3 / 2) \times 60$$

$$= 25 / 90$$

Dividing by 5, we get,

$$= 5 / 18$$

$$= 5: 18$$

(vi) 30 days to 36 hours

$$= 30 \times 24 \text{ hours to } 36 \text{ hours}$$

$$= 720: 36$$

$$= 720 / 36$$

Dividing by 36, we get,

$$= 20 / 1$$

$$= 20: 1$$

3. Which of the following statements are true?

(i) 2.5: 1.5:: 7.0: 4.2

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(ii) $(1/2) : (1/3) = (1/3) : (1/4)$

(iii) 24 men: 16 men = 33 horses: 22 horses.

Solution:

(i) $2.5 : 1.5 :: 7.0 : 4.2$

Here,

Product of extremes = 2.5×4.2

We get,

= 10.50

Product of means = 1.5×7.0

We get,

= 10.50

By cross product rule

Product of extremes = Product of means

Therefore,

$2.5 : 1.5 :: 7.0 : 4.2$ is a true statement

(ii) $(1/2) : (1/3) = (1/3) : (1/4)$

Here,

Product of extremes = $(1/2) \times (1/4)$

We get,

= $(1/8)$

Product of means = $(1/3) \times (1/3)$

We get,

= $(1/9)$

By cross product rule

Product of extremes $\neq$ Product of means

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Therefore,

$(1/2):(1/3) = (1/3):(1/4)$ is not a true statement

(iii) 24 men: 16 men = 33 horses: 22 horses

Product of extremes = 24×22

We get,

= 528

Product of means = 16×33

We get,

= 528

By cross product rule

Product of extremes = Product of means

Therefore,

24 men: 16 men = 33 horses: 22 horses is a true statement

4. Check whether the following numbers are in proportion or not:

(i) 18, 10, 9, 5

(ii) 3, , 4,

(iii) 0.1, 0.2, 0.3, 0.6

Solution:

(i) 18, 10, 9, 5

Here,

Product of extremes = 18×5

We get,

= 90

Product of means = 10×9

We get,

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$$= 90$$

By cross product rule

Product of extremes = Product of means

Therefore,

The given numbers, 18, 10, 9, 5 are in proportion

$$(ii) 3, 3\frac{1}{2}, 4, 4\frac{1}{2}$$

Here,

$$\text{Product of extremes} = 3 \times 4\frac{1}{2}$$

$$= 3 \times (9 / 2)$$

We get,

$$= (27 / 2)$$

$$\text{Product of means} = 3\frac{1}{2} \times 4$$

$$= (7 / 2) \times 4$$

We get,

$$= 14$$

By cross product rule

Product of extremes $\neq$ Product of means

Therefore,

The given numbers, $3, 3\frac{1}{2}, 4, 4\frac{1}{2}$ are in proportion

$$(iii) 0.1, 0.2, 0.3, 0.6$$

Here,

$$\text{Product of extremes} = 0.1 \times 0.6$$

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We get,

$$= 0.06$$

$$\text{Product of means} = 0.2 \times 0.3$$

We get,

$$= 0.06$$

By cross product rule

$$\text{Product of extremes} = \text{Product of means}$$

Therefore,

The given numbers, 0.1, 0.2, 0.3, 0.6 are in proportion

5. 6 bowls cost Rs 90. What would be the cost of 10 such bowls?

Solution:

$$\text{Cost of 6 bowls} = \text{Rs } 90$$

Let the cost of 10 bowls be Rs x

$$6: 10 = 90: x$$

$$6 \times x = 10 \times 90 \text{ (ad = bc)}$$

$$6x = 900$$

$$x = 900 / 6$$

We get,

$$x = \text{Rs } 150$$

Therefore,

$$\text{Cost of 10 bowls} = \text{Rs } 150$$

6. Ten pencils cost Rs 15. How many pencils can be bought with Rs 72?

Solution:

$$\text{Cost of 10 pencils} = \text{Rs } 15$$

Let us assume that the number of pencils bought with Rs 72 = x

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$$10: x = 15: 72$$

$$x \times 15 = 10 \times 72 \text{ (bc = ad)}$$

We get,

$$15x = 720$$

$$x = 720 / 15$$

$$x = 48$$

Therefore,

Number of pencils = 48

7. Convert the following speeds into m/sec:

(i) 72 km/h

(ii) 9 km/h

(iii) 1.2 km/minutes

(iv) 600 m/hour

Solution:

(i) 72 km/h

WKT

$$1 \text{ km} = 1000 \text{ m and}$$

$$1 \text{ hour} = 3600 \text{ sec}$$

Hence,

$$1 \text{ km} / \text{h} = (1000) / (3600)$$

$$= (5 / 18) \text{ m/s}$$

Therefore,

$$72 \text{ km/h} = (5 / 18) \times 72 \text{ m/sec}$$

We get,

$$= 20 \text{ m/ sec}$$

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(ii) 9 km/h

$$1 \text{ hour} = 3600 \text{ sec}$$

$$1 \text{ km} = 1000 \text{ m}$$

$$1 \text{ km} / \text{m} = (1000) / (3600)$$

We get,

$$= (5 / 18) \text{ m/s}$$

Therefore,

$$9 \text{ km/h} = (5 / 18) \times 9 \text{ m/sec}$$

We get,

$$= (5 / 2)$$

$$= 2.5 \text{ m/ sec}$$

(iii) 1.2 km/minutes

$$1 \text{ hour} = 60 \text{ minutes}$$

$$1.2 \text{ km/min} = 1.2 \times 60 \text{ km/h}$$

Now,

$$1 \text{ km/ h} = (5 / 18) \text{ m/s}$$

$$1.2 \times 60 \text{ km/ h} = 1.2 \times 60 \times (5 / 18) \text{ m/sec}$$

$$= 72 \times (5 / 18) \text{ m/sec}$$

We get,

$$= 20 \text{ m/sec}$$

(iv) 600 m/ hour

$$= (600) / (1000) \text{ km/h}$$

$$= \{(600 \times 5) / (1000 \times 18)\} \text{ m/sec}$$

We get,

$$= (1 / 6) \text{ m/sec}$$

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About ML Aggarwal

M. L. Aggarwal, is an Indian mechanical engineer, educator. His achievements include research in solutions of industrial problems related to fatigue design. Recipient Best Paper award, Manipal Institute of Technology, 2004. Member of TSTE.

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