MATHS

BOOKS - RS AGGARWAL MATHS (HINGLISH)

RATIO, PROPORTION AND UNITARY METHOD

Solved Examples

1. Convert the ratio 40: 25 in its simplest form.

2. Express the ratio 87:58 in simplest form.

3. Suppose that Kunal's weight is 28 kg and Tanvy's weight is 32 kg. Then,ratio of there weight

4. Find the ratio of 40 cm to 1.5 m.

5. The length and the breadth of a rectangular park are 75 m and 60 m respectively. What is the ratio of the length to the breadth of the park?

A. $4 : 5$

B. $5 : 4$

C. $2 : 3$

D. $3 : 2$

Answer: B

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6. The length of a pencil is $16cm$ and its diameter is $6mm$. What is the ratio of the diameter of the pencil to that of its length?

A. $7 : 80$

B. $3 : 80$

C. $9 : 80$

D. $7 : 50$

Answer: B

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7. Find the ratio of 90 cm to 1.5 m.

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8. Find the ratio of a. 36 minutes to an hour b. 40 paise to ₹3 c. 125 mL to 2 L d. a dozen to a score

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9. Find two equivalent ratios of 3 : 4.

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10. Fill in the blank boxes:

$$\frac{14}{21} = \frac{\square}{3} = \frac{6}{\square}$$

11. Two numbers are in the ratio 5 : 4 and their sum is 162. Find the numbers.

    A. 90 and 72.

    B. 80 and 72.

    C. 90 and 62.

D. 70 and 72.

Answer: A

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12. Divide ₹1250 between Mayank and Ishita in the ratio 3:2.

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13. Divide ₹1200 among A, B and C in the ratio 2:3:5.

14. Compare the ratios (5:6) and (3:4).

    A. $(5:6) = (3:4)$.

    B. $(5:6) < (3:4)$.

    C. $(5:6) > (3:4)$.

    D. none of these

Answer: C

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15. The ratio of copper and zinc in an alloy is 5:3. If the weight of copper in the alloy is 30.5 g. find the weight of zinc in it.

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16. Are the ratio in proportion of weight and volume.

It is given that the weights of 150 litres and 100 litres of kerosene oil are 135 kg and 90 kg respectively.

17. Are the ratios 45 g: 60 g and 36 kg : 48 kg in proportion?

18. Are 30, 40, 45, 60 in proportion?

19. Are 20, 18, 5, 6 in proportion?

20. If 36: 81::X: 63, find the value of x.

A. 38

B. 28

C. 48

D. 58

Answer: B

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21. If 36: x :: x :63, find the value of x.

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22. if 25, 35, x are in propotion find the value of

x?

A. $x = 49$

B. $x = 39$

C. $x = 29$

D. $x = 59$

Answer: A

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23. If 15 oranges cost ₹ 70. what is the cost of

39 oranges?

A. ₹162

B. ₹172

C. ₹182

D. ₹192

Answer: C

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24. A truck runs 492 km on 36 L of diesel. How many kilometres can it run on 33 L of diesel?

A. 151 km

B. 251 km

C. 351 km

D. 451 km

Answer: D

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25. 25 bags of wheat, each weighing 50 kg. cost ₹ 10000. Find the cost of 35 bags of wheat each weighing 40 kg.

26. 12 men can reap a field in 25 days. In how many days can 20 men reap the same field?

    A. 65 days

    B. 35 days

    C. 15 days

    D. 25 days

Answer: C

▶

27. In an army camp, there were provisions for 425 men for 30 days. However, 375 men attended the camp. How long did the provisions last?

28. Find the ratio of price of coffee to that of tea when coffee costs 24 per 100 gram tea costs ₹ 180 per kilogram.

Exercise 10 A

1. Find ratio in the simplest form:

a. 24 to 56

b. 84 paise to ₹3

c. 4 kg to 750 g

d. 1.8 kg to 6 kg

e. 48 minutes to 1 hour

f. 2.4 km to 900 m

2. Express ratio in the simplest form:

a. 36 : 90

b. 324:144

c. 85 : 561

d. 480: 384

e. 186 : 403

f. 777 : 1147

3. Write ratio in the simplest form:

a. ₹ 6.30: ₹16.80

b. 3 weeks : 30 days

c. 3 m 5 cm : 35 cm

d. 48 min: 2 hours 40 min

e. 1 L 35 mL : 270 ml

f. 4 kg: 2 kg 500 g

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4. Mr Sahai and his wife are both school teachers and earn ₹16800 and ₹10500 per month respectively. Find the ratio of

a. Mr Sahai's income to his wife's income,

b. Mrs Sahai's income to her husband's income,

c. Mr Sahai's income to the total income of the two.

5. Rohit earns ₹15300 and saves ₹ 1224 per month. Find the ratio of

a. his income and savings:

b. his income and expenditure,

c. his expenditure and savings.

6. The ratio of the number of male and female workers in a textile mill is 5:3. If there are 115

male workers, what is the number of female workers in the mill?

7. The boys and the girls in a school are in the ratio 9:5. If the total strength of the school is 448, find the number of girls.

8. Divide ₹1575 between Kamal and Madhu in the ratio 7: 2.

9. Divide ₹ 3450 among A, B and C in the ratio 3:5:7.

10. Two numbers are in the ratio 11:12 and their sum is 460. Find the numbers.

A. 220, 240

B. 220, 220

C. 210, 240

D. 200, 240

Answer: A

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11. A 35-cm line segment is divided into two parts in the ratio 4:3. Find the length of each part.

12. A factory produces electric bulbs. If 1 out of every 10 bulbs is defective and the factory produces 630 bulbs per day, find the number of defective bulbs produced each day.

13. Find the ratio of the price of a pencil to that of a ball pen if pencils cost ₹ 96 per score and ball pens cost ₹ 50.40 per dozen.

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14. The ratio of the length of a field to its width is 5:3. Find its length if the width is 42 metres.

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15. The ratio of income to savings of a family is 11: 2. Find the expenditure if the savings is ₹ 1520.

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16. The ratio of income to expenditure of a family is 7:6. Find the savings if the income is ₹ 14000.

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17. The ratio of zinc and copper in an alloy is 7:9. If the weight of copper in the alloy is 11.7 kg, find the weight of zinc in it.

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18. A bus covers 128 km in 2 hours and a train covers 240 km in 3 hours. Find the ratio of their speeds.

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19. From the given pair, find which ratio is larger:

a. (3 : 4) or (9:16)

b. (5:12) or (17 : 30)

c. (3:7) or (4:9)

d. (1 : 2) or (13:27)

20. Fill in the place holders:

a. $\dfrac{24}{40} = \dfrac{\square}{5} = \dfrac{12}{\square}$

b. $\dfrac{36}{63} = \dfrac{4}{\square} = \dfrac{\square}{21}$

c. $\dfrac{5}{7} = \dfrac{\square}{28} = \dfrac{35}{\square}$

Exercise 10 B

1. Determine if the numbers are in proportion:

a. 4, 6, 8, 12

b. 7, 42, 13, 78

c. 33, 121, 9, 96

d. 22, 33, 42, 63

e. 32, 48, 70, 210

f. 150, 200, 250, 300

2. Verify:

a. 60 : 105 :: 84 : 147

b. 91 : 104: : 119: 136

c. 108 : 72 :: 129 : 86

d. 39: 65 :: 141 : 235

3. Find the value of x in the proportions:

a. 55:11: :x: 6

b. 27 :x::63: 84

c. 51 : 85 :: 57 : x

d. x: 92 :: 87: 116

4. Write (T) for true and (F) for false :

a. 51 : 68 :: 85 : 102

b. 36 : 45 : : 80 : 100

c. 30 bags : 18 bags : : ₹ 450 : ₹ 270

d. 81 kg : 45 kg : : 18 men : 10 men

e. 45 km: 60 km : : 12 h: 15 h

f. 32 kg : ₹ 36 :: 8 kg : ₹ 9

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5. Determine if the following ratios form a proportion. Also, write the middle terms and extreme terms where the ratios form a proportion. (a) 25 cm : 1 m and Rs 40 : Rs 160

(b) 39 litres : 65 litres and 6 bottles : 10 bottles

(c) 2 kg : 80 kg and 25 g

6. In a proportion, the 1st, 2nd and 4th terms are 51, 68 and 108 respectively. Find the 3rd term.

7. The Ist. 3rd and 4th terms of a proportion are 12, 8 and 14 respectively. Find the 2nd term.

8. Show that the numbers are in continued proportion:

a. 48, 60, 75

b. 36, 90, 225

c. 16, 84, 441

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9. If 9, x, x, 49 are in proportion, find the value of x.

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10. An electric pole casts a shadow of length 20 m at a time when a tree 6 m high casts a shadow of length 8 m. Find the height of the pole.

11. Find the value of x if 5:3 :: x: 6.

1. If the cost of 14 m of cloth is ₹ 1890, find the cost of 6 m of cloth.

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2. If the cost of a dozen soaps is ₹ 285.60, what will be the cost of 15 such soaps?

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3. If 9 kg of rice costs ₹ 327.60, what will be the cost of 50 kg of rice?

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4. If 22.5 m of a uniform iron rod weighs 85.5 kg, what will be the weight of 5 m of the same rod?

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5. If 15 tins of the same size contain 234 kg of oil, how much oil will there be in 10 such tins?

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6. If 12 L of diesel is consumed by a car in covering a distance of 222 km, how many kilometres will it go in 22 L of diesel?

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7. A transport company charges ₹ 540 to carry 25 tonnes of weight. What will it charge to carry 35 tonnes?

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8. 4.5 g of an alloy of copper and zinc contains 3.5 g of copper. What weight of copper will there be in 18.9 g of the alloy?

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9. 35 inland letters cost ₹ 87.50. How many such letters can we buy for ₹ 315?

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10. Cost of 4 dozen bananas is ₹ 104. How many bananas can be purchased for ₹ 6.50?

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11. The cost of 18 chairs is ₹ 22770. How many such chairs can be bought for ₹ 10120?

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12. A car travels 195 km in 3 hours.

a. How long will it take to travel 520 km?

b. How far will it travel in 7 hours with the same speed?

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13. A labourer earns ₹ 1980 in 12 days.

a. How much does he earn in 7 days?

b. In how many days will he earn ₹ 2640?

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14. The weight of 65 books is 13 kg.

a. What is the weight of 80 such books?

b. How many such books weigh 6.4 kg?

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15. If 48 boxes contain 6000 pens, how many such boxes will be needed for 1875 pens?

16. 24 workers can build a wall in 15 days. How many days will 9 workers take to build a similar wall?

A. 30 days

B. 40 days

C. 50 days

D. 60 days

Answer: B

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17. 40 men can finish a piece of work in 26 days. How many men will be needed to finish it in 16 days?

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18. In an army camp, there were provisions for 550 men for 28 days. But, 700 men attended the camp. How long did the provisions last?

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19. A given quantity of rice is sufficient for 60 persons for 3 days. How many days would the rice last for 18 persons?

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1. The ratio 92 : 115 in its simplest form is

    A. $23 : 25$

    B. $18 : 23$

    C. 3:5

    D. 4:5

Answer: D

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2. If 57:X ::51:85, then the value of x is

A. 95

B. 76

C. 114

D. none of these

Answer: A

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3. If 25:35 :: 45 : x, then the value of x is

A. 63

B. 72

C. 54

D. none of these

Answer: A

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4. If 4:5::X:35, then the value of x is

A. 42

B. 32

C. 28

D. none of these

Answer: C

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5. If a, b, c, d are in proportion, then

A. ac = bd

B. ad = bc

C. ab = cd

D. none of these

Answer: B

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6. If $a,\ b,\ c$ are in proportion, then $a^2 = bc$ (b) $b^2 = ac$ (c) $c^2 = ab$ (d) None of these

A. a = bc

B. b = ac

C. c = ab

D. none of these

Answer: B

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7. Choose the correct statement:

A. $(5:8) > (3:4)$

B. $(5:8) < (3:4)$

C. two ratios cannot be compared

D. none of these

Answer: B

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8. If ₹ 760 is divided between A and B in the ratio 8:11, then B's share is

    A. ₹ 440

    B. ₹320

    C. ₹430

    D. ₹330

Answer: A

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9. Two numbers are in the ratio 5 : 7 and the sum of these numbers is 252. The larger of these numbers is

A. 85

B. 119

C. 105

D. 147

Answer: D

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10. The sides of a triangle are in the ratio 1 : 3:5 and its perimeter is 90 cm. The length of its largest side is

A. 40 cm

B. 50 cm

C. 36 cm

D. 54 cm

Answer: B

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11. The ratio of boys and girls in a school is 12: 5. If the number of girls is 840, the total strength of the school is

    A. 1190

    B. 2380

    C. 2856

    D. 2142

Answer: C

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12. If the cost of 12 pens is ₹ 138, then the cost of 14 such pens is

    A. ₹ 164

    B. ₹161

    C. ₹118.30

    D. ₹ 123.50

Answer: B

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13. If 24 workers can build a wall in 15 days, how many days will 8 workers take to build a similar wall?

A. 12 days

B. 45 days

C. 18 days

D. none of these

Answer: B

▶ **Watch Video Solution**

14. If 40 men can finish a piece of work in 26 days, how many men will be required to finish it in 20 days?

A. 52

B. 31

C. 13

D. 65

Answer: A

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15. In covering 111 km, a car consumes 6 L of petrol. How many kilometres will it go in 10 L of petrol?

A. 172 km

B. 185 km

C. 205 km

D. 266.4 km

Answer: B

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16. In a fort, 550 men had provisions for 28 days. How many days will it last for 700 men?

A. 22 days

B. $35\dfrac{7}{11}$ days

C. 34 days

D. none of these

Answer: A

17. The angles of a triangle are in the ratio 3:

1:2. The measure of the largest angle is

A. $30°$

B. $60°$

C. $90°$

D. $120°$

Answer: C

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18. Length and breadth of a rectangular field are in the ratio 5 : 4. If the width of the field is 36 m, what is its length?

A. 40 m

B. 45 m

C. 54 m

D. 50 m

Answer: B

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19. If a bus covers 195 km in 3 hours and a train covers 300 km in 4 hours, then the ratio of their speeds is

A. 13 : 15

B. 15:13

C. 13:12

D. 12:13

Answer: A

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20. If the cost of 5 bars of soap is ₹ 82.50, then the cost of one dozen such bars is

    A. ₹ 208

    B. ₹ 192

    C. ₹ 198

    D. ₹204

Answer: C

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21. If the cost of 30 packets of 8 pencils each is ₹ 600, what is the cost of 25 packets of 12 pencils each?

A. ₹ 725

B. ₹ 750

C. ₹ 480

D. ₹ 720

Answer: B

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22. A rail journey of 75 km costs ₹ 215. How much will a journey of 120 km cost?

    A. ₹344

    B. ₹ 324

    C. ₹268.75

    D. none of these

Answer: A

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23. The 1st, 2nd and 4th terms of a proportion are 12, 21 and 14 respectively. Its third term is

A. 16

B. 18

C. 21

D. 8

Answer: D

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24. 10 boys can dig a pitch in 12 hours. How long will 8 boys take to do it?

A. $9h36$ min

B. 15 h

C. 6 h 40 min

D. 13 h 20 min

Answer: B

1. Find the ratio of:

a. 90 cm to 1.05 m

b. 35 minutes to an hour

c. 150 mL to 2 L

d. 2 dozens to a score

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2. The ratio of zinc and copper in an alloy is 7:9. If the weight of copper in the alloy is 12.6

kg, find the weight of zinc in it.

3. Divide $Rs.$ 1400 among A, B and C in the

ratio $2 : 3 : 5$.

    A. Rs.290, Rs. 420, Rs. 700

    B. Rs.100, Rs. 420, Rs. 700

    C. Rs.280, Rs. 420, Rs. 700

    D. Rs.180, Rs. 400, Rs. 700

Answer: C

4. Prove that (5:6) > (3:4).

5. 40 men can finish a piece of work in 26 days. How many men will be needed to finish it in 16 days?

6. In an army camp, there were provisions for 425 men for 30 days. How long did the provisions last for 375 men?

7. Find the value of x when 36: x::x:16.

A. x=23

B. x=24

C. x=26

D. x=25

Answer: B

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8. Show that 48, 60, 75 are in continued proportion.

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9. Two numbers are in the ratio 3:5 and their sum is 96. The larger number is

A. 36

B. 42

C. 60

D. 70

Answer: C

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10. A car travels 288 km in 4 hours and a train travels 540 km in 6 hours. The ratio of their speeds is

A. 5:4

B. 4:5

C. 5:6

D. 3:5

Answer: B

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11. The first three terms of a proportion are 12. 21 and 8 respectively. The 4th term is

A. 18

B. 16

C. 14

D. 20

Answer: C

12. The ratio 92 : 115 in simplest form is

A. 23:25

B. 18:23

C. 3:5

D. 4:5

Answer: D

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13. If 57:x::51: 85, then the value of x is

A. 95

B. 76

C. 114

D. none of these

Answer: A

14. If 4:5:: x:45, then the value of x is

A. 54

B. 60

C. 36

D. 30

Answer: C

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15. If a, b, c are in proportion, then

A. $a^2 = bc$

B. $b^2 = ac$

C. $c^2 = ab$

D. none of these

Answer: B

▶ **Watch Video Solution**

16. 10 boys can dig a pitch in 12 hours. How long will 8 boys take to do it?

A. 9 hrs 36 min

B. 15 hrs

C. 6 hrs 40 min

D. 13 hrs 10 min

Answer: B

17. In covering 148 km, a car consumes 8 litres of petrol. How many kilometres will it go in 10 litres of petrol?

A. 172 km

B. 185 km

C. 205 km

D. 266.4 km

Answer: B

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18. Fill in the blanks

a. $\dfrac{14}{21} = \dfrac{\square}{3} = \dfrac{6}{\square}$

b. 90 cm : 1.5 m = ...

c. If 36:81:: x: 63, then x = ...

d. If 25, 35, x are in proportion, then x = ...

e. if 9, x,x , 49 are in propotion, then x= ....

19. Write 'T' for true and 'F' for false for the statement given below:

a. 30, 40, 45, 60 are in proportion.

b. 6:8 and 9: 12 are equivalent ratios of 3 : 4.

c. a dozen : a score = 5:3.

d. 60 p : ₹ 3 = 1:5.