



MATHS

BOOKS - RS AGGARWAL MATHS (HINGLISH)

RATION AND PROPORTION

Example

1. Express the ration $75 : 125$ in simplest form.

A. 2: 5

B. 3: 4

C. 3: 5

D. none of these

Answer: C



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2. The daily pocket expenses of A and B are Rs. 60 and Rs. 75' respectively. What is the ration of their expenses in simplest form?

A. 4 : 9

B. 4 : 5

C. 4 : 7

D. 5 : 7

Answer: B



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3. Express each of the following ratios in simplest form,

(i) $\frac{1}{4} : \frac{1}{6}$

(ii) $8\frac{1}{3} : 6\frac{1}{4}$

(iii) 8.5 : 10



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4. Find the ratio of:

(i) 2m to 24cm

(ii) 3 days to 30 hours

(iii) 1 km to 360 m

(iv) 1 kg to 150 g



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5. The cost of an eraser is 80 paise and the cost of a pencil is Rs 2. What is the ratio of their costs in simplest form?



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6. Divide Rs 840 between Amit and Tanvy in the ratio 5: 7

A. 350, 490

B. 400, 440

C. 220 , 620

D. None of these

Answer: A



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7. Divide Rs 1350 among A, B and C in the ratio

2:3:4



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8. If $A : B = 5 : 8$ and $B : C = 18 : 25$ find $A : C$

A. 20 : 9

B. 9 : 25

C. 20 : 5

D. 9 : 20

Answer: D



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9. If $2A = 3B = 4C$, find $A : B : C$



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10. If $A : B = 5 : 6$ and $B : C = 8 : 9$, find $A : B : C$

A. 20 : 24 : 27

B. 30 : 48 : 54

C. 20 : 48 : 54

D. 40 : 24 : 27

Answer: A



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11. If $x : y = 3 : 2$ find $(2x + 3y) : (3x + 5y)$



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12. What must be added to each term of the ratio $3 : 5$ so that the new ratio becomes $5 : 6$?

A. 6

B. 7

C. 8

D. 5

Answer: B



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13. Two numbers are in the ratio $5:6$ If 8 subtracted from each the ratio becomes $4:5$ find the numbers.

A. 40,48

B. 40,18

C. 30,36

D. 20,25

Answer: A



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14. The ratio of male and female workers in a factory is $8:5$. If there are 104 male workers. Find the number of female workers in the factory.

A. 60

B. 65

C. 70

D. 75

Answer: B



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15. The ages of A and B are in the ratio 5:7. Eight years ago, their ages were in the ratio 7:13. Find their present ages



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16. A bag contains 50 P, 25P and 10 P coins in the ratio 5 : 9 : 4 amounting to Rs 206 Find the number of coins of each type .



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17. which is greater 4: 5 or 16: 25 ?

A. 4: 5

B. 16: 25

C. can not decide

D. none of these

Answer: A



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18. Arrange the ratio $(5:6)$, $(7:10)$, $(13:15)$ and $(23:30)$ in ascending order .



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Solved Example

1. Show that the numbers 22, 33, 42, 63 are in proportion



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2. Show that the numbers 25, 36, 5, 6 are not in proportion ?



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3. If $x : 18 :: 5 : 3$ find the value of x .



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4. The first three terms of a porportion are 3,5 and 21 respectively. Find its fourth term.



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5. If 25, 35, x are in continued proportion, find the value of x



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6. Find the third proportional to 9 and 12.



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7. Find the mean proportional between 8 and 18.



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8. What number must be added to each of the numbers 10, 18, 22, 38 to get the numbers which are in proportion ?



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9. What must be subtracted from each of the numbers 23, 40, 57 and 108 so that the remainders are in proportion ?



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10. The scale of a map is 1 : 2500000. What is the actual distance between two towns if they are 3 cm apart on the map ?



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Exercise 8 A

1. Express each of the following ratios in simplest form : (a) $24:40$ (b) $13.5:15$ (c) $6\frac{2}{3}:7\frac{1}{2}$ (d) $\frac{1}{6}:\frac{1}{9}$ (e) $4:5:\frac{9}{2}$ (f) $2.5:6.5:8$



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2. Express each of the following ratios in simplest form :

(i) 75 paise : 3 rupes

(ii) 1 m : 5cm : 63 cm

(iii) 1 hour 5 minute : 45 minutes

(iv) 8 months : 1 year

(v) 2 kg 250g : 3kg

(vi) 1 km : 750 m



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3. If $A : B = 7 : 5$ and $B : C = 9 : 14$ find $A : C$



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4. If $A : B = 5 : 8$ and $B : C = 16 : 25$ find $A : C$



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5. If $A : B = 3 : 5$ and $B : C = 10 : 13$ find
 $A : B : C$



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6. If $A : B = 5 : 6$ and $B : C = 4 : 7$ find
 $A : B : C$





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7. Divide Rs 360 between kunal and mohit in the ratio 7:8



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8. Divide Rs 880 between Rajan and kamal in the ratio $\frac{1}{5} : \frac{1}{6}$



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9. Divide Rs 5600 between A, B and C in the ratio 1:3:4



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10. What number must be added to each term of the ratio 9:16 to make the ratio 2:3



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11. What number must be subtracted from each term of the ratio 17:33 so that the ratio

becomes 7:15



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12. Two numbers are in the ratio 7:11. If 7 is added to each of the numbers, the ratio becomes 2:3. Find the numbers.



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13. Two numbers are in the ratio 5:9. On subtracting 3 from each, the ratio becomes 1:

2. Find the numbers



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14. Two numbers are in the ratio $3:4$. If their LCM is 180, Find the numbers.



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15. The ages of A and B are in the ratio $8:3$. Six years hence their ages will be in the ratio $9:4$. Find their present ages.



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16. The ratio of copper and zinc in an alloy is 9:5. If the weight of copper in the alloy is 48.6 grams. Find the weight of zinc in the alloy.



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17. The ratio of boys and girls in a school is 8:3. If the total number of girls is 375, find the number of boys in the school.



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18. The ratio of monthly income to the savings of a family is $11:2$. If the savings be Rs 2500, find the income and expenditure.



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19. A bag contains Rs 750 in the form of rupees, 50 P and 25 P coins in the ratio $5:8:4$. Find the number of coins of each type.



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20. If $(4x + 5) : (3x + 11) = 13 : 17$, find the value of x .



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21. If $x : y = 3 : 4$ find $(3x + 4y) : (5x + 6y)$.



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22. If $x : y = 6 : 11$ find $(8x - 3y) : (3x + 2y)$



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23. Two numbers are in the ratio 5:7 If the sum of the numbers is 720, find the numbers.



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24. Which ratio is greater ?

(i) (5:6) or (7:9)

(ii) (2:3) or (4:7)

(iii) $(1:2)$ or $(4:7)$

(iv) $(3:5)$ or $(8:13)$



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25. Arrange the following ratios in ascending order:

(i) $(5:6)$, $(8:9)$, $(11:18)$

(ii) $(11:14)$, $(17:21)$, $(5:7)$ and $(2:3)$



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Exercise 8 B

1. Show that 30, 40, 45, 60 are in proportion



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2. Show that 36, 49, 6, 7 are not in proportion.



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3. If $2 : 9 :: x : 27$, find the value of x .

A. 8

B. 5

C. 6

D. 7

Answer: C



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4. If $8 : x :: 16 : 35$, find the value of x .



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5. If $x : 35 :: 48 : 60$, find the value of x .



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6. Find the fourth proportional to the numbers

:

(i) 8, 36, 6

(ii) 5, 7, 30

(iii) 2, 8, 14, 3.5



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7. If 36, 54, x are in continued proportion, find the value of x.

A. 101

B. 81

C. 71

D. 91

Answer: B



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8. If 27, 36, x are in continued proportion, find the value of x.



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9. Find the third proportional to:

8 and 12

12 and 18

4.5 and 6



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10. If the third proportional to 7 and x is 28, find the value of x .



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11. Find the mean proportional between:

(i) 6 and 24

(ii) 3 and 27

(iii) 0.4 and 0.9



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12. What number must be added to each of the numbers 5, 9, 7, 12 to get the numbers which are in proportion?



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13. What number must be subtracted from each of the numbers 10, 12, 19, 24 to get the numbers which are in proportion ?



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14. The scale of a map is $1:5000000$. What is the actual distance between two towns. If they are 4 cm apart on the map?



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15. At a certain time a tree 6 m high casts a shadow of length 8 meters. At the same time a pole casts a shadow of length 20 meters. Find the height of the pole.



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Exercise 8 C

1. If $a:b = 3:4$ and $b:c = 8:9$, then $a:c = ?$

A. 1:2

B. 3:2

C. 1:3

D. 2:3

Answer: B



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2. If $A : B = 2 : 3$ and $B : C = 4 : 5$ then $C : A =$
?

A. 15 : 8

B. 6 : 5

C. 8 : 5

D. 8 : 15

Answer: D



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3. If $2A = 3B$ and $4B = 5C$, then $A : C = ?$

A. 4 : 3

B. 8 : 15

C. 3 : 4

D. 15 : 8

Answer: B



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4. If 15% of $A = 20\%$ of B , then $A : B = ?$

A. 3:4

B. 4:3

C. 17:16

D. 16:17

Answer: B



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5. If $A = \frac{1}{3}B$ and $B = \frac{1}{2}C$, then $A : B : C$?

A. 6:3:1

B. 2:3:6

C. 3:2:6

D. 3:1:2

Answer: A



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6. If $A:B = 5:7$ and $B:C = 6:11$ then

$A:B:C = ?$

A. 30:42:55

B. 30 : 42 : 77

C. 35 : 49 : 66

D. none of these

Answer: B



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7. If $2A = 3B = 4C$, then $A : B : C = ?$

A. 2 : 3 : 4

B. 4 : 3 : 2

C. 6:4:3

D. 3:4:6

Answer: C



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8. If $\frac{A}{3} = \frac{B}{4} = \frac{C}{5}$, then $A:B:C = ?$

A. 3:4:5

B. 4:3:5

C. 5:4:3

D. 20 : 15 : 12

Answer: A



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9. If $\frac{1}{x} : \frac{1}{y} : \frac{1}{z} = 2 : 3 : 5$, then $x : y : z = ?$

A. 2 : 3 : 5

B. 15 : 10 : 6

C. 5 : 3 : 2

D. 6 : 10 : 15

Answer: B



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10. If $x : y = 3 : 4$ then $(7x + 3y) : (7x - 3y) =$
?

A. 4 : 3

B. 5 : 2

C. 11 : 3

D. 37 : 39

Answer: C



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11. If $(3a + 5b) : (3a - 5b) = 5 : 1$ then $a : b = ?$

A. 2 : 1

B. 3 : 2

C. 2 : 5

D. 5 : 3

Answer: C



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12. If $7 : x :: 35 : 45$, then $x = ?$

A. 11

B. 15

C. 9

D. 5

Answer: C



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13. What number has to be added to each term of $3:5$ to make the ratio $5:6$

A. 6

B. 9

C. 12

D. 11

Answer: C



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14. Two number are in the ratio 3:5. If each number is increased by 10. the ratio becomes 5:7 The sum of the numbers is ?

A. 8

B. 16

C. 35

D. 40

Answer: B



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15. What least number is to be subtracted from each term of the ratio 15:19 to make the ratio 3:4? (a) 3 (b) 5 (c) 6 (d) 9

A. 3

B. 5

C. 6

D. 9

Answer: A



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16. If Rs 420 is divided between A and B in the ratio 3 : 4 then A's share is ?

A. Rs 180

B. Rs 240

C. Rs 270

D. Rs 210

Answer: A



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17. The boys and girls in a school are in the the ratio 8 : 5. If the number of girls is 160. What is the total strength of the school ?

A. 250

B. 260

C. 356

D. 256

Answer: B



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18. Which one is greater out of $(2:3)$ and $(4:7)$?

A. $2:3$

B. $4:7$

C. both are equal

D. none of these

Answer: A



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19. The third proportional to 9 and 12 is

A. 10.5

B. 8

C. 16

D. 21

Answer: A



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20. The mean proportional between 9 and 16 is

A. 12.5

B. 12

C. 5

D. none of these

Answer: A



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21. The ages of A and B are in the ratio 3 : 8. Six years hence, their ages will be in the ratio 4 : 9.

The present age of A is ?

A. 18 years

B. 15 years

C. 12 years

D. 21 years

Answer: C



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1. Compare 4: 5 and 7: 9



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2. Divide Rs 1100 among A, B and C in the ratio

2: 3: 5



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3. Show that the numbers 25, 36, 5, 6 are not proportion.



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4. If x , 18, 108 are in the continued Proportion, find the value of x .



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5. Two numbers are in the ratio 5 : 7. If the sum of these numbers is 84, find the numbers.



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6. The ages of A and B are in the ratio 4 : 3. Eight years ago. Their ages were in the ratio 10 : 7. Find their present ages.



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7. If a car covers 54 km in an hour, how much distance will it cover in 40 minutes ?



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8. Find the third proportional to 8 and 12



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9. If 40 men can finish a piece of work in 60 days. In how many days will 75 , men finish the

same work ?



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10. If $2A = 3B = 4C$ then $A : B : C = ?$

A. 2 : 3 : 4

B. 3 : 4 : 6

C. 4 : 3 : 2

D. 6 : 4 : 3

Answer: B



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11. If $\frac{A}{2} = \frac{B}{3} = \frac{C}{4}$ then $A : B : C$

A. 2 : 3 : 4

B. 4 : 3 : 2

C. 3 : 2 : 4

D. none of these

Answer: A



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12. If $(x : y) = (3 : 4)$ then

$$(7x + 3y) : (7x - 3y) = ?$$



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13. What least number must be subtracted from each term of the ratio 15:19 to make the ratio 3:4?

A. 3

B. 5

C. 6

D. 9

Answer: *A*



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14. If Rs 840 is divided between A and B in the ratio 4: 3 then B's share is

A. Rs 480

B. Rs 360

C. Rs 320

D. Rs 540

Answer: B



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15. The ages of A and B are in the ratio 5:2

After 5 years their ages will be in the ratio

15:7, The present age of A is

A. 48 years

B. 36 years

C. 40 years

D. 35 years

Answer: B



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16. The boys and girls in a school are in the the ration 9 : 5. If the number of girls is 320, then the total strength of the school is

A. 840

B. 896

C. 920

D. 576

Answer: B



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17. Fill in the blanks

(i) If $A : B = 2 : 3$ and $B : C = 4 : 5$ then $C : A$

=

(ii) If 16% of A = 20% of B, then

$A : B = \dots\dots\dots$ (iii) If $A = \frac{1}{3}B$ and B

$= \frac{1}{2}C$, then $A : B : C \dots\dots\dots$ If $A : B = 5 : 7$

and $B : C = 6 : 11$ then $A : B : C = \dots\dots\dots$



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18. Write 'T' for true and 'F' for false for each of the following

(i) Mean proportional between 0.4 and 0.9 is 0.6

(ii) The third proportional to 9 and 12 is 10.5.

(iii) If $8 : x :: 48 : 18$, then $x = 3$

(iv) If $(3a + 5b) : (3a - 5b) = 5 : 1$ then

$$a : b = 5 : 2$$



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