



1. The ratio 3 : 4 is proportional to which of the following ratios?

- (i) 15:16 (ii) 12:20 (iii) 6:12 (iv) 9:8 (v) 18:24

2. Componendo of $a:o::i:q$

- (i) $a:i::o:q$ (ii) $a+o:a-o::i+q:i-q$ (iii) $a+o:o::i+q:q$ (iv) $a-o:o::i-q:q$ (v) $o:a::q:i$

3. If 1, x, 16 are in continued proportion, find x

- (i) 3 (ii) 4 (iii) 2 (iv) 7 (v) 5

4. If $\frac{x+y}{ax+by} = \frac{y+z}{ay+bz} = \frac{z+x}{az+bx}$, then each of the ratios is equal to

- (i) $\frac{a+b}{x+y}$ (ii) 1 (iii) $\frac{2}{(a+b)}$ (iv) $\frac{(a+b)}{2}$ (v) $\frac{x+y}{a+b}$

5. If $\frac{(a^3+75ab^2)}{(15a^2b+125b^3)} = \frac{1072}{386}$, find $a:b$

- (i) 40:-2 (ii) 40:3 (iii) 41:1 (iv) 39:1 (v) 40:1

6. Find the third proportional of 75 and 15

- (i) 15 (ii) 225 (iii) 75 (iv) 3 (v) 0

7. What least number must be added to 11, 26, 1, 10 so that the resulting numbers are in proportion?

- (i) 13 (ii) 11 (iii) 15 (iv) 14 (v) 17

8. Componendo of $\frac{u}{b} = \frac{r}{v}$

- (i) $\frac{b}{u} = \frac{v}{r}$ (ii) $\frac{u+b}{u-b} = \frac{r+v}{r-v}$ (iii) $\frac{u}{r} = \frac{b}{v}$ (iv) $\frac{u+b}{b} = \frac{r+v}{v}$ (v) $\frac{u-b}{b} = \frac{r-v}{v}$

9. Find the product of means of 18:3 and 19:11

- (i) 56 (ii) 60 (iii) 57 (iv) 54 (v) 198

10. Alternendo of $\frac{8}{2} = \frac{56}{14}$

- (i) $\frac{10}{2} = \frac{70}{14}$ (ii) $\frac{10}{6} = \frac{70}{42}$ (iii) $\frac{8}{56} = \frac{2}{14}$ (iv) $\frac{2}{8} = \frac{14}{56}$ (v) $\frac{6}{2} = \frac{42}{14}$

11. Dividendo of 5:2::10:4

- (i) 5:10::2:4 (ii) 2:5::4:10 (iii) 7:2::14:4 (iv) 7:3::14:6 (v) 3:2::6:4

12. Find the mean proportional of 8 and 32

- (i) 14 (ii) 15 (iii) 16 (iv) 17 (v) 18

13. If $(20x^2 - 29xy + 5y^2) = 0$, find $x : y$

- (i) $4 : 4$ or $1 : 5$ (ii) $5 : 4$ or $0 : 5$ (iii) $6 : 4$ or $1 : 5$ (iv) $5 : 4$ or $1 : 5$ (v) $5 : 4$ or $1 : 8$

14. If $a : b :: c : d$, then

- (i) $abc = bcd$ (ii) $ad = bc$ (iii) $ab = cd$ (iv) $ac = bd$

15. Componendo of $7 : 5 :: 56 : 40$

- (i) $2 : 5 :: 16 : 40$ (ii) $12 : 5 :: 96 : 40$ (iii) $12 : 2 :: 96 : 16$ (iv) $7 : 56 :: 5 : 40$ (v) $5 : 7 :: 40 : 56$

16. Find the product of means of $\frac{9}{20} : \frac{12}{19}$ and $\frac{12}{5} : \frac{5}{14}$

- (i) $\frac{146}{95}$ (ii) $\frac{9}{56}$ (iii) $\frac{48}{31}$ (iv) $\frac{142}{95}$ (v) $\frac{144}{95}$

17. If $\frac{a}{b} = \frac{c}{d} = \frac{e}{f}$, then $\frac{(a+c+e)}{(b+d+f)} =$

- (i) ace (ii) 1 (iii) $\frac{a}{b}$ (iv) $(a+b+c)$ (v) $2(a+b+c)$

18. Find the third proportional of 98 and 14

- (i) 3 (ii) 4 (iii) 0 (iv) 1 (v) 2

19. Invertendo of $\frac{o}{x} = \frac{r}{a}$

- (i) $\frac{o}{r} = \frac{x}{a}$ (ii) $\frac{x}{o} = \frac{a}{r}$ (iii) $\frac{o-x}{x} = \frac{r-a}{a}$ (iv) $\frac{o+x}{o-x} = \frac{r+a}{r-a}$ (v) $\frac{o+x}{x} = \frac{r+a}{a}$

20. Alternendo of $\frac{s}{w} = \frac{l}{f}$

- (i) $\frac{s-w}{w} = \frac{l-f}{f}$ (ii) $\frac{s+w}{s-w} = \frac{l+f}{l-f}$ (iii) $\frac{w}{s} = \frac{f}{l}$ (iv) $\frac{s+w}{w} = \frac{l+f}{f}$ (v) $\frac{s}{l} = \frac{w}{f}$

21. Invertendo of $\frac{8}{7} = \frac{64}{56}$

- (i) $\frac{8}{64} = \frac{7}{56}$ (ii) $\frac{15}{1} = \frac{120}{8}$ (iii) $\frac{1}{7} = \frac{8}{56}$ (iv) $\frac{7}{8} = \frac{56}{64}$ (v) $\frac{15}{7} = \frac{120}{56}$

22. If $\frac{(a^3 + 12a)}{(6a^2 + 8)} = \frac{280}{152}$, find a

- (i) 7 (ii) 10 (iii) 9 (iv) 11 (v) 12

23. Dividendo of $\frac{u}{e} = \frac{g}{v}$

- (i) $\frac{u}{g} = \frac{e}{v}$ (ii) $\frac{u+e}{u-e} = \frac{g+v}{g-v}$ (iii) $\frac{u+e}{e} = \frac{g+v}{v}$ (iv) $\frac{u-e}{e} = \frac{g-v}{v}$ (v) $\frac{e}{u} = \frac{v}{g}$

24. Find two numbers whose mean proportional is 8 and third proportional is 64

- (i) 6 and 16 (ii) 4 and 14 (iii) 4 and 16 (iv) 4 and 15 (v) 5 and 16

25. If ' b ' is the mean proportional between ' a ' and ' c ', then the mean proportional between $(a^2 + b^2)$ and $(b^2 + c^2)$ is
- (i) $b(a + c)$ (ii) $ab + bc + ca$ (iii) $c(a + b)$ (iv) $a(b + c)$

Assignment Key

1) (v)	2) (iii)	3) (ii)	4) (iii)	5) (v)	6) (iv)
7) (iv)	8) (iv)	9) (iii)	10) (iii)	11) (v)	12) (iii)
13) (iv)	14) (ii)	15) (ii)	16) (v)	17) (iii)	18) (v)
19) (ii)	20) (v)	21) (iv)	22) (ii)	23) (iv)	24) (iii)
25) (i)					