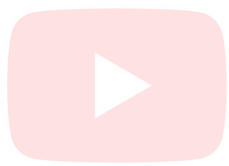


Ratio & Proportion - Past Year Questions

- Which of the following is not in proportion?
(a) 8,6,12,9 (b) 6,12,16,32 (c) 6,8,5,7 (d) 18,27,12,18 [CPT June 2012]
- Find the two numbers such that the mean proportional between them is 18 and third proportional between them is 144.
(a) 6,24 (b) 9,36 (c) 7,28 (d) 8,32 [CPT December 2012]
- The mean proportional between 24 and 54 is
(a) 33 (b) 34 (c) 35 (d) 36 [CPT June 2013]
- Triplicate ratio of 4 : 5 is
(a) 16 : 25 (b) 64 : 125 (c) 120 : 46 (d) 125 : 64 [CPT June 2013]
- The ratio of numbers is 1 : 2 : 3 and sum of their squares is 504 then the numbers are
(a) 3,6,9 (b) 4,8,12 (c) 5,10,15 (d) 6,12,18 [CPT December 2013]
- If $x : y = 2 : 3$ then $(5x+2y) : (3x-y) =$
(a) 7 : 2 (b) 16 : 3 (c) 7 : 3 (d) 19 : 3 [CPT June 2014]
- If P is 25% less than Q and R is 20% higher than Q the Ratio of R and P
(a) 3 : 5 (b) 5 : 8 (c) 8 : 5 (d) 5 : 3 [CPT June 2014]
- A person has assets worth ₹ 1,48,200. He wishes to divide it amongst his wife, son and daughter in the ratio 3:2:1 respectively. From these assets, the share of his son will be
(a) ₹ 24,500 (b) ₹ 37,050 (c) ₹ 49,400 (d) ₹ 74,100 [CPT June 2014]
- The first, second and third month salaries of a person are in the ratio 2 : 4 : 5. The difference between the product of the salaries of first 2 months & last 2 months is ₹ 4,80,00,000. Find the salary of the second month
(a) 4,000 (b) 6,000 (c) 8,000 (d) 12,000 [CPT December 2014]
- If $15(2p^2 - q^2) = 7pq$ where p, q are positive then p:q
(a) 5 : 6 (b) 3 : 5 (c) 5 : 7 (d) 3 : 7 [CPT June 2015]
- If one type of rice of cost ₹ 13.84 is mixed with another type of rice of cost ₹ 15.54. The mixture is sold at ₹ 17.6 with a profit of 14.6% on selling price then in which proportion the two types of rice are mixed?
(a) 3 : 7 (b) 5 : 7 (c) 7 : 9 (d) 9 : 1 [CPT June 2015]
- Find the ratio of third proportional of 12 & 30 and mean proportional of 9 & 25
(a) 9 : 4 (b) 7 : 2 (c) 5 : 1 (d) 3 : 2 [CPT December 2015]
- What must be added to each of the numbers 10, 18, 22 and 38 to make them proportional
(a) 3 (b) 2 (c) 5 (d) 4 [CPT December 2015]

14. x, y, z together starts a business. If x invests 3 times as much as y invests and y invests two third of what z invests, then the ratio of capitals of x, y, z is
 (a) 3 : 9 : 2 (b) 6 : 2 : 3 (c) 6 : 3 : 2 (d) 3 : 6 : 2 [CPT June 2016]
15. A bag contains 23 number of coins in the form of 1 rupee, 2 rupees and 5 rupees coin. The total sum of the coins is ₹ 43. The ratio between 1 rupee and 2 rupees coins is 3 : 2, then the number of 1 rupee coins is
 (a) 12 (b) 10 (c) 8 (d) None of these [CPT December 2016]
16. If $a : b = 2 : 3$, $b : c = 4 : 5$, $c : d = 6 : 7$ then $a : d$ is
 (a) 7 : 15 (b) 8 : 15 (c) 16 : 35 (d) 24 : 35 [CPT June 2017]
17. The ratio of the number of five rupee coins to number of ten rupee coins is 8 : 15. If the total value of five rupee coins is ₹ 360, then the no. of ten rupee coins is
 (a) 60 (b) 70 (c) 135 (d) 150 [CPT December 2017]
18. If $\frac{1}{2}, \frac{1}{3}, \frac{1}{5}, \frac{1}{x}$ are in proportion then $x =$
 (a) $\frac{1}{15}$ (b) $\frac{2}{15}$ (c) $\frac{3}{15}$ (d) $\frac{15}{2}$ [CPT December 2017]
19. If $p : q$ is the sub-duplicate ratio of $p - x^2 : q - x^2$ then x^2 is
 (a) $\frac{p}{p+q}$ (b) $\frac{q}{p+q}$ (c) $\frac{pq}{p+q}$ (d) $\frac{p+q}{pq}$ [CA Foundation May 2018]
20. The mean proportional between 24 and 54 is
 (a) 33 (b) 34 (c) 35 (d) 36 [CA Foundation May 2018]
21. If $(a + b) : (b + c) : (c + a) = 7 : 8 : 9$ and $a + b + c = 18$ then $a : b : c$ is
 (a) 3 : 4 : 5 (b) 4 : 3 : 5 (c) 4 : 5 : 3 (d) 5 : 4 : 3 [CPT June 2018]
22. The mean proportional between 2 and 1.25 is
 (a) 0.625 (b) 1.581 (c) 2.5 (d) 1.75 [CPT December 2018]
23. $\frac{3x - 2}{5x + 6}$ is the duplicate ratio of $\frac{2}{3}$ then find the value of x is
 (a) 2 (b) 5 (c) 6 (d) 9 [CA Foundation December 2018]
24. If $x : y : z = 7 : 4 : 11$ then $\frac{x+y+z}{z}$ is
 (a) 2 (b) 3 (c) 4 (d) 5 [CA Foundation December 2018]
25. Two numbers are in the ratio 3 : 5. If 8 is added to both the numbers then the ratio becomes 2 : 3 The numbers are
 (a) 24, 35 (b) 24, 40 (c) 40, 24 (d) 35, 24 [CPT June 2019]
26. If $(x+5)$ is the mean proportional between $(x+2)$ and $(x+9)$ then the value of x is
 (a) 4 (b) 5 (c) 7 (d) 8 [CPT June 2019]

27. If the ratio of two numbers is 7 : 11. If 7 is added to each number, then the new ratio will be 2 : 3 then the numbers are
(a) 49, 77 (b) 39, 40 (c) 42, 45 (d) 43, 42 [CA Foundation June 2019]
28. The two numbers are in ratio 3 : 4. The difference between their squares is 28. Find the greater number.
(a) 16 (b) 10 (c) 8 (d) 12 [CA Foundation November 2019]
29. If $a : b = 9 : 4$ then $\sqrt{\frac{a}{b}} + \sqrt{\frac{b}{a}}$ is
(a) $\frac{2}{3}$ (b) $\frac{3}{2}$ (c) $\frac{13}{6}$ (d) $\frac{6}{13}$ [CA Foundation December 2020]
30. If $a : b = 3 : 7$ then $3a + 2b : 4a + 5b =$
(a) 29 : 53 (b) 27 : 43 (c) 47 : 23 (d) 23 : 47 [CA Foundation December 2020]
31. The ratio of no. of boys and the no. of girls in a school is found to be 15:32. How many boys and equal no. of girls should be added to bring the ratio to $\frac{2}{3}$?
(a) 27 (b) 23 (c) 19 (d) 20 [CA Foundation December 2020]



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1. The value of $\frac{3^{n+1} + 3^n}{3^{n+3} - 3^{n+1}} =$
- (a) $\frac{1}{5}$ (b) $\frac{1}{6}$ (c) $\frac{1}{4}$ (d) $\frac{1}{9}$ [CPT June 2012]
2. Find the value of x if $x \cdot x^{1/3} = (x^{1/3})^x$
- (a) 2 (b) 3 (c) 4 (d) 5 [CPT December 2012]
3. If $\sqrt[3]{a} + \sqrt[3]{b} + \sqrt[3]{c} = 0$ then find the value of $\left(\frac{a+b+c}{3}\right)^3$
- (a) abc (b) 9abc (c) $\frac{1}{abc}$ (d) $\frac{9}{abc}$ [CPT December 2013]
4. The value of $\left(\frac{y^a}{y^b}\right)^{a^2+ab+b^2} \cdot \left(\frac{y^b}{y^c}\right)^{b^2+bc+c^2} \cdot \left(\frac{y^c}{y^a}\right)^{c^2+ca+a^2} =$
- (a) -1 (b) 0 (c) 1 (d) 10 [CPT June 2014]
5. If $(25)^{150} = (25x)^{50}$ then the value of x is
- (a) 5^3 (b) 5^2 (c) 5^4 (d) 5 [CPT June 2014]
6. If $p^x = q$, $q^y = r$, $r^z = p^6$ then the value of xyz is
- (a) 0 (b) 6 (c) 1 (d) 3 [CPT June 2015]
7. If $2^{x+y} = 2^{2x-y} = \sqrt{8}$ then the respective values of x and y are
- (a) $\frac{1}{2}, \frac{1}{2}$ (b) $\frac{1}{2}, 1$ (c) $1, \frac{1}{2}$ (d) 1, 1 [CPT June 2016]
8. The value of $\frac{x^2-(y-z)^2}{(x+z)^2-y^2} + \frac{y^2-(x-z)^2}{(x+y)^2-z^2} + \frac{z^2-(x-y)^2}{(y+z)^2-x^2}$ is
- (a) -1 (b) 0 (c) 1 (d) 2 [CPT June 2016]
9. If $3^x = 5^y = (75)^z$ then
- (a) $\frac{1}{x} + \frac{2}{y} = \frac{1}{z}$ (b) $\frac{2}{x} + \frac{1}{y} = \frac{1}{z}$ (c) $\frac{1}{x} + \frac{1}{y} = \frac{2}{z}$ (d) $\frac{1}{x} + \frac{1}{y} = \frac{1}{z}$ [CPT December 2016]
10. If $abc = 2$ then the value of $\frac{1}{1+a+2b^{-1}} + \frac{1}{1+\frac{b}{2}+c^{-1}} + \frac{1}{1+a^{-1}+c} =$
- (a) $\frac{1}{2}$ (b) $\frac{3}{4}$ (c) 1 (d) 2 [CPT December 2016]
11. If $a = \frac{\sqrt{6}+\sqrt{5}}{\sqrt{6}-\sqrt{5}}$, $b = \frac{\sqrt{6}-\sqrt{5}}{\sqrt{6}+\sqrt{5}}$ then the value of $\frac{1}{a^2} + \frac{1}{b^2}$ is
- (a) 500 (b) 486 (c) 484 (d) 482 [CPT June 2017]

12. If $u^{5x} = v^{5y} = w^{5z}$ and $u^2 = vw$ then $xy + zx - 2yz =$

- (a) 0 (b) 1 (c) 2 (d) None of these [CPT December 2017]

13. $\frac{2^n + 2^{n-1}}{2^{n+1} - 2^n} =$

- (a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{3}{2}$ (d) $\frac{2}{3}$ [CA Foundation May 2018]

14. $\left(x \sum_{n=1}^{\infty} ap^{n-1}\right)^{1-p} \cdot \left(x \sum_{n=1}^{\infty} bq^{n-1}\right)^{1-q} \cdot \left(x \sum_{n=1}^{\infty} cr^{n-1}\right)^{1-r} =$

- (a) x^{abc} (b) $x^{-(ap+bq+cr)}$ (c) $x^{(ap+bq+cr)}$ (d) $x^{(a+b+c)}$ [CPT June 2018]

15. On simplification, $(x^a \cdot y^{-b})^5 (x^5 \cdot y^3)^{-a} =$

- (a) y^{3a+5b} (b) y^{5a+3b} (c) $y^{-(3a+5b)}$ (d) $y^{-(5a+3b)}$ [CPT December 2018]

16. If $x = 3 + \sqrt{8}$ then the value of $\left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)$ is

- (a) $\sqrt{2}$ (b) $2\sqrt{2}$ (c) $-2\sqrt{2}$ (d) 2 [CPT December 2018]

17. If $p = x^{1/3} + x^{-1/3}$ then $p^3 - 3p =$

- (a) $\frac{1}{2}\left(x + \frac{1}{x}\right)$ (b) $\left(x + \frac{1}{x}\right)$ (c) $-\frac{1}{2}\left(x + \frac{1}{x}\right)$ (d) $\left(x - \frac{1}{x}\right)$ [CPT December 2018]

18. $\frac{2^{m+1} \cdot 3^{2m-n+3} \cdot 5^{n+m+4} \cdot 6^{2n+m}}{6^{2m+n} \cdot 10^{n+1} \cdot 15^{m+3}} =$

- (a) 3^{2m-2n} (b) 3^{2n-2m} (c) 1 (d) None of these [CA Foundation December 2018]

19. If $2^{x^2} = 3^{y^2} = 12^{z^2}$ then

- (a) $\frac{1}{x^2} + \frac{2}{y^2} = \frac{1}{z^2}$ (b) $\frac{2}{x^2} + \frac{1}{y^2} = \frac{1}{z^2}$ (c) $\frac{1}{x^2} + \frac{1}{y^2} = \frac{2}{z^2}$ (d) $\frac{1}{x^2} + \frac{1}{y^2} = \frac{1}{z^2}$ [CA Foundation June 2019]

20. The value of $\left(\frac{9^{n+\frac{1}{4}} \cdot \sqrt{3 \cdot 3^n}}{3 \cdot \sqrt{3^{-n}}}\right)^{\frac{1}{n}} =$

- (a) 1 (b) 9 (c) 3 (d) 27 [CA Foundation November 2019]

21. If $x = \left(\sqrt{3} + \frac{1}{\sqrt{3}}\right)$ then $\left(x - \frac{\sqrt{126}}{\sqrt{42}}\right) \left(x - \frac{1}{x - \frac{2\sqrt{3}}{3}}\right) =$

- (a) $\frac{2}{3}$ (b) $\frac{5}{6}$ (c) $-\frac{2}{3}$ (d) $-\frac{5}{6}$ [CA Foundation November 2019]

22. If $x = \frac{1}{5+2\sqrt{6}}$ then the value of the expression $x^2 - 10x + 1 =$

- (a) 0 (b) 1 (c) 10 (d) 2 [CA Foundation November 2019]

23. Find the value of 'a':- $(\sqrt{9})^{-5} \cdot (\sqrt{3})^{-7} = (\sqrt{3})^{-a}$

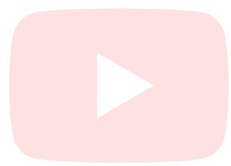
(a) 11

(b) 13

(c) 15

(d) 17

[CA Foundation December 2020]



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Logarithm - Past Year Questions



1. If $\log_x y = 100$ and $\log_2 x = 10$, then the value of y is =
(a) 2^{10} (b) 2^{100} (c) 2^{1000} (d) 2^{10000} [CPT June 2012]
2. Which is true if $\frac{1}{ab} + \frac{1}{bc} + \frac{1}{ca} = \frac{1}{abc}$
(a) $\log(ab+bc+ca) = abc$ (b) $\log\left(\frac{1}{a} + \frac{1}{b} + \frac{1}{c}\right) = abc$
(c) $\log(abc) = 0$ (d) $\log(a+b+c) = 0$ [CPT December 2012]
3. If $\log_{10} 5 + \log_{10}(5x + 1) = \log_{10}(x + 5) + 1$ then $x =$
(a) 1 (b) 3 (c) 5 (d) 10 [CPT December 2012]
4. If $(\log_{\sqrt{x}} 2)^2 = \log_x 2$ then $x =$
(a) 16 (b) 8 (c) 32 (d) 4 [CPT June 2013]
5. Find the value of $[\log_y x \cdot \log_z y \cdot \log_x z]$
(a) -1 (b) 0 (c) 1 (d) 10 [CPT December 2013]
6. Find the value of $\log_4 9 \cdot \log_3 2$
(a) 9 (b) 3 (c) 2 (d) 1 [CPT December 2013]
7. If $x^2 + y^2 = 7xy$ then $\log\left(\frac{x+y}{3}\right)$
(a) $\log x + \log y$ (b) $\frac{1}{2}(\log x + \log y)$ (c) $\frac{1}{3}(\log x + \log y)$ (d) $\frac{1}{4}(\log x + \log y)$ [CPT June 2014]
8. If $x = \log_{24} 12$; $y = \log_{36} 24$; $z = \log_{48} 36$ then $xyz + 1 = ?$
(a) $2xy$ (b) $2yz$ (c) $2zx$ (d) 2 [CPT June 2014]
9. If $\log x = a + b$; $\log y = a - b$; then $\log\left(\frac{10x}{y^2}\right) =$
(a) $1 - a + 3b$ (b) $a - 1 + 3b$ (c) $a + 3b + 1$ (d) $1 - 3b + a$ [CPT December 2014]
10. If $x = 1 + \log_p qr$, $y = 1 + \log_q rp$, $z = 1 + \log_r pq$ then find $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} =$
(a) -1 (b) 0 (c) 1 (d) 2 [CPT December 2014]
11. If $\log x = m + n$; $\log y = m - n$; then $\log\left(\frac{10x}{y^2}\right) =$
(a) $1 - m + 3n$ (b) $m - 1 + 3n$ (c) $m + 3n + 1$ (d) $1 - 3n + m$ [CPT June 2015]
12. $\log_3 5 \cdot \log_5 4 \cdot \log_2 3 =$
(a) -2 (b) 2 (c) 5 (d) None of these [CPT December 2015]

13. If $\log_4(x^2 + x) - \log_4(x + 1) = 2$ then the value of x is:-
 (a) 2 (b) 3 (c) 8 (d) 16 [CPT June 2016]
14. $\log x + \log\left(\frac{x^2}{y}\right) + \log\left(\frac{x^3}{y^2}\right) \dots\dots\dots n$ terms
 (a) $\frac{n}{2} [n \log\left(\frac{x}{y}\right) + \log(xy)]$ (b) $\frac{n}{2} [\log\left(\frac{x}{y}\right) + \log(xy)]$
 (c) $\frac{n}{2} [n \log\left(\frac{x}{y}\right) - \log(xy)]$ (d) None of these [CPT June 2016]
15. The value of $\frac{1}{\log_3 60} + \frac{1}{\log_4 60} + \frac{1}{\log_5 60}$
 (a) 0 (b) 1 (c) 5 (d) 60 [CPT June 2016]
16. The integral part of a logarithm is called _____, and the decimal part of a logarithm is called _____.
 (a) Mantissa, Characteristic (b) Characteristic, Mantissa
 (c) Whole, Decimal (d) None of these [CPT June 2016]
17. Given $\log 2 = 0.3010$ and $\log 3 = 0.4771$ then the value of $\log 24 =$
 (a) 1.3018 (b) 1.3081 (c) 1.3801 (d) 1.0381 [CPT December 2016]
18. $\log(1^3 + 2^3 + 3^3 + \dots\dots\dots + n^3) =$
 (a) $2 \log n + 2 \log(n+1) - 2 \log 2$ (b) $\log n + 2 \log(n+1) - 2 \log 2$
 (c) $2 \log n + \log(n+1) - 2 \log 2$ (d) None of these [CPT June 2017]
19. If $\log_3 [\log_4 (\log_2 x)] = 0$ then $x =$
 (a) 4 (b) 8 (c) 16 (d) 32 [CPT December 2017]
20. If $\log\left(\frac{x-y}{2}\right) = \frac{1}{2} (\log x + \log y)$ then $x^2 + y^2 =$
 (a) $2xy$ (b) $6xy$ (c) $3x^2y^2$ (d) $6x^2y^2$ [CPT December 2017]
21. The value of $a^{\log_a b \cdot \log_b c \cdot \log_c d \cdot \log_d t} =$
 (a) $abcdt$ (b) a^t (c) t (d) $a^{\log t}$ [CA Foundation May 2018]
22. If $\log_x \sqrt[3]{2} = \frac{1}{15}$ then $x =$
 (a) 2 (b) 4 (c) 8 (d) 16 [CPT June 2018]
23. Find the logarithm of $\frac{1}{64}$ to the base 4
 (a) -3 (b) -2 (c) 2 (d) 3 [CPT December 2018]

24. $\log_2(\log_2(\log_2 16)) =$

- (a) 0 (b) 2 (c) 1 (d) 3

[CA Foundation December 2018]

25. If $a = \log_{24} 12$; $b = \log_{36} 24$; $c = \log_{48} 36$ then $(1 + abc) - 2bc =$

- (a) 0 (b) a (c) c (d) d

[CPT June 2019]

26. $\log_{2\sqrt{2}} 512 : \log_{3\sqrt{2}} 324 =$

- (a) 2 : 3 (b) 3 : 2 (c) 2 : 9 (d) 9 : 2

[CA Foundation June 2019]

27. The value of $\log_5 \left(1 + \frac{1}{5}\right) + \log_5 \left(1 + \frac{1}{6}\right) + \dots + \log_5 \left(1 + \frac{1}{624}\right) =$

- (a) 0 (b) 5 (c) 2 (d) 3

[CA Foundation June 2019]

28. If $\log_{0.01} 10000 = x$, then the value of x is

- (a) - 4 (b) - 2 (c) 2 (d) 4

[CA Foundation November 2019]

29. If $\log xy^2 - \log y = \log(x + y)$ then the value of y in terms of x is

- (a) $x - 1$ (b) $x + 1$ (c) $\frac{x}{x-1}$ (d) $\frac{x}{x+1}$

[CA Foundation November 2019]

30. $\log 9 + \log 5$ can be expressed as

- (a) $\log \left(\frac{9}{5}\right)$ (b) $\log \left(\frac{5}{9}\right)$ (c) $\log 45$ (d) $\log 4$

[CA Foundation December 2020]

31. If $\log_a \sqrt{3} = \frac{1}{6}$ then the value of a is

- (a) 3 (b) 9 (c) 27 (d) 81

[CA Foundation December 2020]