

Contents

- Multiplication based
- Square / Cube based
- Fraction based
- Miscellaneous

Number of Questions : 35**Multiplication based**

1. $57 \times 59 = ?$
2. $63 \times 72 = ?$
3. $84 \times 86 = ?$
4. $88 \times 93 = ?$
5. $94 \times 112 = ?$
6. $108 \times 114 = ?$
7. $345 \times 543 = ?$
8. $524 \times 368 = ?$
9. $525 \times 84 = ?$
10. $538 \times 999 = ?$

Square / Cube based

11. $(92)^2 = ?$
12. $(108)^2 = ?$
13. $(993)^2 = ?$
14. $(1008)^2 = ?$

15. $(1012)^2 = ?$

16. $(31)^3 = ?$

17. $(91)^3 = ?$

18. $(112)^3 = ?$

19. $(1005)^3 = ?$

20. $(997)^3 = ?$

Fraction based

Directions for questions 21 to 27: Find the approximate value of the following fractions.

21. $\frac{338}{473}$

(1) 70.4

(2) 69.4

(3) 71.2

(4) 74.3

22. $\frac{3}{7}$

(1) 42.84

(2) 43.76

(3) 44.78

(4) 41.76

23. $\frac{443}{898}$
 (1) 48.5 (2) 49.8
 (3) 49.4 (4) 47.9

24. $\frac{8}{19}$
 (1) 41.02 (2) 40.08
 (3) 41.08 (4) 42.08

25. $\frac{547}{1973}$
 (1) 29.82 (2) 27.72
 (3) 28.92 (4) 26.92

26. $\frac{1.6 \times 1.12}{6.63}$
 (1) 27.63% (2) 27.02%
 (3) 28.11% (4) 26.53%

27. $\frac{5}{19}$
 (1) 24.3% (2) 25.7%
 (3) 26.3% (4) 24.7%

Miscellaneous

28. (i) 20% of x is equal to 10.
 (ii) 8% of x is equal to 90.
 (iii) 15% of x is equal to 15.
 (iv) 17.5% of x is equal to 35.

Which one of the above gives greatest value of x?

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

29. If 30% of A is added to 40% of B, the answer is 80% of B. What percentage of A is B?
 (1) 30% (2) 40%
 (3) 70% (4) 75%

30. If 90% of A = 30% of B and B = 2x% of A, then the value of x is
 (1) 450 (2) 400
 (3) 300 (4) 150

31. If X = 37.5% of 20% of 48 and Y = 14.28% of 27.27% of 77, then
 (1) X > Y (2) X = Y
 (3) X < Y (4) X - Y = 1.4

32. A student obtained 95 marks out of 250 in mathematics. If passing percentage is 42%, then by how many marks did he fail?
 (1) 10 (2) 15
 (3) 20 (4) 12

33. If 74% of a number is 555, then what will be 44% of that number?
 (1) 750 (2) 330
 (3) 290 (4) 310

34. If $\sqrt{4096} = 64$, then the value of $\sqrt{40.96} + \sqrt{0.4096} + \sqrt{0.004096} + \sqrt{0.00004096}$ will be
 (1) 7.09 (2) 7.1014
 (3) 7.1104 (4) 7.12

35. If $\frac{1}{a+b} = \frac{1}{a} + \frac{1}{b}$, then the value of $a^3 - b^3$ will be
 (1) 0 (2) 5
 (3) $\frac{3}{2}$ (4) 1

QA - 01 : Percentage - 1

Answers and Explanations

21	3	22	1	23	3	24	4	25	2	26	2	27	3	28	2	29	4	30	4
31	1	32	1	33	2	34	3	35	1										

- | | |
|---|--|
| <p>1. 3363.</p> <p>2. 4536.</p> <p>3. 7224.</p> <p>4. 8184.</p> <p>5. 10528.</p> <p>6. 12312.</p> <p>7. 187335</p> <p>8. 192832.</p> <p>9. 44100.</p> <p>10. 537462.</p> <p>11. Here, base = 100
Therefore, $(92)^2 = 100 + 2 \times (-8) \mid (-8)^2$
= 84 64
= 8464.</p> <p>12. Here, base = 100
Therefore, $(108)^2 = (100 + 2 \times 8) \mid 8^2$
= 116 64 = 11664.</p> <p>13. Here, base = 1000
Therefore, $(993)^2 = 1000 - 2 \times 7 \mid (-7)^2 = 986 \mid 049$
= 986049.</p> <p>14. Here, base = 1000
Therefore,
$(1008)^2 = 1000 + 2 \times 8 \mid (8)^2 = 1016 \mid 064 = 1016064.$</p> | <p>15. Here, base = 1000
Therefore, $(1012)^2 = 1000 + 2 \times 12 \mid (12)^2$
= 1024 144 = 1024144.</p> <p>16. $(30 + 1)^3 = (30)^3 + (1)^3 + 3 \cdot 30 \cdot 1(30 + 1)$
= 27000 + 1 + 2790 = 29791.</p> <p>17. Base 100. Answer is $(100 - 27) \mid 3 \times (-9)^2 \mid (-9)^3$
= 73 243 - 729
= 73 235 800 - 729 {Taking borrow 8 from the other side}
= 73 235 71 = 73 + 2(= 75) 35 71 = 753571.</p> <p>18. Base 100. Answer is $(100 + 36) \mid 3 \times 144 \mid 1728$
= 1404928.</p> <p>19. Base 1000. Answer is $(1000 + 15) \mid 3 \times 25 \mid 125$
= 1015075125.</p> <p>20. Base 1000. Answer is $(1000 - 9) \mid 3 \times (-3)^2 \mid (-3)^3$
= 991 27 - 27
= 991 026 1000 - 27 = 991026973.</p> <p>21. 3 Since $\frac{338}{473} \approx \frac{2}{3}$

$\therefore \frac{338}{473} = \frac{338 + 27 \times \frac{2}{3}}{473 + 27} = \frac{356}{500} = 0.712$ i.e. 71.2%.</p> <p>22. 1 Since $\frac{1}{7} = 14.28\%$

$\therefore \frac{3}{7} = 14.28 \times 3 = 42.84\%$.</p> |
|---|--|

23. 3 Since $\frac{443}{898} \approx \frac{1}{2}$

Therefore, $\frac{443}{898} = \frac{443 + 102 \times \frac{1}{2}}{898 + 102} = \frac{494}{1000}$
 $= 0.494$ i.e, 49.4%.

24. 4 Since $\frac{1}{19} \approx 5.26\%$

$\therefore \frac{8}{19} = 8 \times 5.26 = 42.08\%$.

25. 2 Since $\frac{547}{1973} \approx \frac{3}{11}$

Therefore, $\frac{547}{1973} = \frac{547 + \frac{3}{11} \times 27}{1973 + 27} = \frac{547 + 7.36}{2000}$
 $= \frac{554.36}{2000} = 0.27718 \approx 27.72\%$.

26. 2 $1.6 \times 1.12 = 1.792$

$\frac{1.792}{6.63} = 25\% + \frac{0.13}{6.63} = 25\% + \frac{13}{663}, \frac{13}{663} \approx 2\%$.

Thus, the answer = 27.02%

27. 3 Since $\frac{1}{19} = 5.26\%$

$\Rightarrow \frac{5}{19} = 5 \times 5.26 = 26.3\%$.

28. 2 (i) 20% of $x = 10$

$\Rightarrow \frac{20}{100} \times x = 10 \Rightarrow x = 50$.

(ii) 8% of $x = 90$

$\Rightarrow \frac{8}{100} \times x = 90 \Rightarrow x = 1125$

(iii) 15% of $x = 15$

$\Rightarrow \frac{15}{100} \times x = 15 \Rightarrow x = 100$

(iv) 17.5% of $x = 35$

$\Rightarrow \frac{17.5}{100} \times x = 35 \Rightarrow x = 200$.

29. 4 $\frac{30}{100} \times A + \frac{40}{100} \times B = \frac{80}{100} \times B$

$\Rightarrow 30A + 40B = 80B$

$\Rightarrow 30A = 40B$

Percentage of A is $B = \frac{30}{40} \times 100 = 75\%$.

30. 4 $\frac{90}{100} \times A = \frac{30}{100} \times B$

$\Rightarrow \frac{B}{A} = \frac{90}{30} = 3$

$\frac{B}{A} = \frac{2x}{100}$

$\therefore 3 = \frac{2x}{100}$

$\Rightarrow 2x = 300 \Rightarrow x = 150$.

31. 1 $X = 37.5\%$ of 20% of $48 = \frac{3}{8} \times \frac{1}{5} \times 48 = 3.6$

$Y = 14.28\%$ of 27.27% of $77 = \frac{1}{7} \times \frac{3}{11} \times 77 = 3$

$\therefore X > Y$.

32. 1 Passing marks = $\frac{42}{100} \times 250 = 105$

He is failed by $105 - 95 = 10$ marks.

33. 2 Let x be the number. Then,

$\frac{74}{100} \times x = 555 \Rightarrow x = 750$

$\therefore 44\%$ of $750 = \frac{44}{100} \times 750 = 330$.

34. 3 $\sqrt{40.96} + \sqrt{0.4096} + \sqrt{0.004096} + \sqrt{0.00004096}$
 $= 6.4 + 0.64 + 0.064 + 0.0064$
 $= 7.1104$.

35. 1 $\frac{1}{(a+b)} = \frac{a+b}{ab}$

$\Rightarrow (a+b)^2 - ab = 0$

$\Rightarrow a^2 + b^2 + ab = 0$