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Decimal Fractions

IMPORTANT FACTS AND FORMULAE

I. Decimal Fractions: Fractions in which denominators are powers of 10 are known as *decimal fractions*.

Thus, $\frac{1}{10} = 1 \text{ tenth} = .1$; $\frac{1}{100} = 1 \text{ hundredth} = .01$;

$\frac{99}{100} = 99 \text{ hundredths} = .99$; $\frac{7}{1000} = 7 \text{ thousandths} = .007$, etc.

II. Conversion of a Decimal into Vulgar Fraction: Put 1 in the denominator under the decimal point and annex with it as many zeros as is the number of digits after the decimal point. Now, remove the decimal point and reduce the fraction to its lowest terms.

Thus, $0.25 = \frac{25}{100} = \frac{1}{4}$; $2.008 = \frac{2008}{1000} = \frac{251}{125}$.

III. 1. Annexing zeros to the extreme right of a decimal fraction does not change its value.

Thus, $0.8 = 0.80 = 0.800$, etc.

2. If numerator and denominator of a fraction contain the same number of decimal places, then we remove the decimal sign.

Thus, $\frac{1.84}{2.99} = \frac{184}{299} = \frac{8}{13}$; $\frac{.365}{.584} = \frac{365}{584} = \frac{5}{8}$.

IV. Operations on Decimal Fractions:

1. **Addition and Subtraction of Decimal Fractions:** The given numbers are so placed under each other that the decimal points lie in one column. The numbers so arranged can now be added or subtracted in the usual way.

2. **Multiplication of a Decimal Fraction By a Power of 10:** Shift the decimal point to the right by as many places as is the power of 10.

Thus, $5.9632 \times 100 = 596.32$; $0.073 \times 10000 = 0.0730 \times 10000 = 730$.

3. **Multiplication of Decimal Fractions:** Multiply the given numbers considering them without the decimal point. Now, in the product, the decimal point is marked off to obtain as many places of decimal as is the sum of the number of decimal places in the given numbers.

Suppose we have to find the product $(.2 \times .02 \times .002)$.

Now, $2 \times 2 \times 2 = 8$. Sum of decimal places = $(1 + 2 + 3) = 6$.

$\therefore .2 \times .02 \times .002 = .000008$.

4. **Dividing a Decimal Fraction By a Counting Number:** Divide the given number without considering the decimal point, by the given counting number. Now, in the quotient, put the decimal point to give as many places of decimal as there are in the dividend.

Suppose we have to find the quotient $(0.0204 \div 17)$. Now, $204 \div 17 = 12$.

Dividend contains 4 places of decimal. So, $0.0204 \div 17 = 0.0012$.

5. **Dividing a Decimal Fraction By a Decimal Fraction:** Multiply both the dividend and the divisor by a suitable power of 10 to make divisor a whole number. Now, proceed as above.

Thus, $\frac{0.00066}{0.11} = \frac{0.00066 \times 100}{0.11 \times 100} = \frac{0.066}{11} = .006$.

V. Comparison of Fractions: Suppose some fractions are to be arranged in ascending or descending order of magnitude. Then, convert each one of the given fractions in the decimal form, and arrange them accordingly.

Suppose, we have to arrange the fractions $\frac{3}{5}$, $\frac{6}{7}$ and $\frac{7}{9}$ in descending order.

Now, $\frac{3}{5} = 0.6$, $\frac{6}{7} = 0.857$, $\frac{7}{9} = 0.777\dots$

Since $0.857 > 0.777\dots > 0.6$, so $\frac{6}{7} > \frac{7}{9} > \frac{3}{5}$.

VI. Recurring Decimal: If in a decimal fraction, a figure or a set of figures is repeated continuously, then such a number is called a *recurring decimal*.

In a recurring decimal, if a single figure is repeated, then it is expressed by putting a dot on it. If a set of figures is repeated, it is expressed by putting a bar on the set.

Thus, $\frac{1}{3} = 0.333\dots = 0.\dot{3}$; $\frac{22}{7} = 3.142857142857\dots = 3.\overline{142857}$.

Pure Recurring Decimal: A decimal fraction in which all the figures after the decimal point are repeated, is called a pure recurring decimal.

Converting a Pure Recurring Decimal into Vulgar Fraction: Write the repeated figures only once in the numerator and take as many nines in the denominator as is the number of repeating figures.

Thus, $0.\dot{5} = \frac{5}{9}$; $0.\overline{53} = \frac{53}{99}$; $0.\overline{067} = \frac{67}{999}$; etc.

Mixed Recurring Decimal: A decimal fraction in which some figures do not repeat and some of them are repeated, is called a mixed recurring decimal.

e.g., $0.17333\dots = 0.17\overline{3}$.

Converting a Mixed Recurring Decimal into Vulgar Fraction: In the numerator, take the difference between the number formed by all the digits after decimal point (taking repeated digits only once) and that formed by the digits which are not repeated. In the denominator, take the number formed by as many nines as there are repeating digits followed by as many zeros as is the number of non-repeating digits.

Thus, $0.1\overline{6} = \frac{16-1}{90} = \frac{15}{90} = \frac{1}{6}$; $0.22\overline{73} = \frac{2273-22}{9900} = \frac{2251}{9900}$.

VII. Some Basic Formulae:

1. $(a + b)(a - b) = (a^2 - b^2)$
2. $(a + b)^2 = (a^2 + b^2 + 2ab)$
3. $(a - b)^2 = (a^2 + b^2 - 2ab)$
4. $(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$
5. $(a^3 + b^3) = (a + b)(a^2 - ab + b^2)$
6. $(a^3 - b^3) = (a - b)(a^2 + ab + b^2)$
7. $(a^3 + b^3 + c^3 - 3abc) = (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ac)$
8. When $a + b + c = 0$, then $a^3 + b^3 + c^3 = 3abc$.

SOLVED EXAMPLES

Ex. 1. Convert the following into vulgar fractions:

(i) 0.75 (ii) 3.004 (iii) .0056

Sol. (i) $0.75 = \frac{75}{100} = \frac{3}{4}$. (ii) $3.004 = \frac{3004}{1000} = \frac{751}{250}$. (iii) $.0056 = \frac{56}{10000} = \frac{7}{1250}$.

Ex. 2. Arrange the fractions $\frac{5}{8}$, $\frac{7}{12}$, $\frac{13}{16}$, $\frac{16}{29}$ and $\frac{3}{4}$ in ascending order of magnitude.

Sol. Converting each of the given fractions into decimal form, we get:

$\frac{5}{8} = 0.625$, $\frac{7}{12} = 0.5833$, $\frac{13}{16} = 0.8125$, $\frac{16}{29} = 0.5517$ and $\frac{3}{4} = 0.75$.

Now, $0.5517 < 0.5833 < 0.625 < 0.75 < 0.8125$.

$\therefore \frac{16}{29} < \frac{7}{12} < \frac{5}{8} < \frac{3}{4} < \frac{13}{16}$.

Ex. 3. Arrange the fractions $\frac{3}{5}$, $\frac{4}{7}$, $\frac{8}{9}$ and $\frac{9}{11}$ in their descending order.

Sol. Clearly, $\frac{3}{5} = 0.6$, $\frac{4}{7} = 0.571$, $\frac{8}{9} = 0.88$, $\frac{9}{11} = 0.818$.

Now, $0.88 > 0.818 > 0.6 > 0.571$.

$$\therefore \frac{8}{9} > \frac{9}{11} > \frac{3}{5} > \frac{4}{7}.$$

Ex. 4. Evaluate: (i) $11.11 + 111.1 + 1111.11$

(Bank Recruitment, 2009)

(ii) $6202.5 + 620.25 + 62.025 + 6.2025 + 0.62025$

(iii) $5.064 + 3.98 + .7036 + 7.6 + .3 + 2$

Sol.

$$\begin{array}{r} (i) \quad 11.11 \\ 111.10 \\ + 1111.11 \\ \hline \hline 1233.32 \end{array}$$

$$\begin{array}{r} (ii) \quad 6202.5 \\ 620.25 \\ 62.025 \\ 6.2025 \\ + 0.62025 \\ \hline \hline 6891.59775 \end{array}$$

$$\begin{array}{r} (iii) \quad 5.064 \\ 3.98 \\ 0.7036 \\ 7.6 \\ 0.3 \\ + 2.0 \\ \hline \hline 19.6476 \end{array}$$

Ex. 5. Evaluate: (i) $31.004 - 17.2386$

(ii) $13 - 5.1967$

Sol.

$$\begin{array}{r} (i) \quad 31.0040 \\ - 17.2386 \\ \hline \hline 13.7654 \end{array}$$

$$\begin{array}{r} (ii) \quad 13.0000 \\ - 5.1967 \\ \hline \hline 7.8033 \end{array}$$

Ex. 6. Evaluate: (i) $515.15 - 15.51 - 1.51 - 5.11 - 1.11$

(Bank P.O., 2009)

(ii) $43.231 - 12.779 - 6.542 - 0.669$

(Bank P.O., 2008)

Sol. (i) Given expression = $515.15 - (15.51 + 1.51 + 5.11 + 1.11) = 515.15 - 23.24 = 491.91$.

$$\begin{array}{r} 515.15 \\ 15.51 \\ 1.51 \\ 5.11 \\ + 1.11 \\ \hline \hline 548.28 \end{array} \quad \begin{array}{r} 515.15 \\ - 23.24 \\ \hline \hline 491.91 \end{array}$$

(ii) Given expression = $43.231 - (12.779 + 6.542 + 0.669) = 43.231 - 19.990 = 23.241$.

$$\begin{array}{r} 43.231 \\ 12.779 \\ 6.542 \\ + 0.669 \\ \hline \hline 63.221 \end{array} \quad \begin{array}{r} 43.231 \\ - 19.990 \\ \hline \hline 23.241 \end{array}$$

Ex. 7. What value will replace the question mark in the following equations?

(i) $5172.49 + 378.352 + ? = 9318.678$

(ii) $? - 7328.96 = 5169.38$

Sol.

(i) Let $5172.49 + 378.352 + x = 9318.678$.

Then, $x = 9318.678 - (5172.49 + 378.352) = 9318.678 - 5550.842 = 3767.836$.

(ii) Let $x - 7328.96 = 5169.38$. Then, $x = 5169.38 + 7328.96 = 12498.34$.

Ex. 8. Find the products: (i) 6.3204×100 (ii) $.069 \times 10000$

Sol. (i) $6.3204 \times 100 = 632.04$. (ii) $.069 \times 10000 = .0690 \times 10000 = 690$.

Ex. 9. Find the products:

(Bank P.O., 2008)

(i) 2.1693×1.4

(ii) $.4 \times .04 \times .004 \times 40$

(iii) $6.66 \times 66.6 \times 66$

Sol.

(i) $21693 \times 14 = 303702$. Sum of decimal places = $(4 + 1) = 5$.

$\therefore 2.1693 \times 1.4 = 3.03702$.

(ii) $4 \times 4 \times 4 \times 40 = 2560$. Sum of decimal places = $(1 + 2 + 3) = 6$.

$\therefore .4 \times .04 \times .004 \times 40 = .002560$.

(iii) $666 \times 666 \times 66 = 29274696$. Sum of decimal places = $(2 + 1) = 3$.

$\therefore 6.66 \times 66.6 \times 66 = 29274.696$.

Ex. 10. Given that $268 \times 74 = 19832$, find the value of $2.68 \times .74$.

Sol. Sum of decimal places = $(2 + 2) = 4$.
 $\therefore 2.68 \times .74 = 1.9832$.

Ex. 11. Find the quotient:

(i) $0.63 \div 9$ (ii) $0.0204 \div 17$ (iii) $3.1603 \div 13$

Sol. (i) $63 \div 9 = 7$. Dividend contains 2 places of decimal.
 $\therefore 0.63 \div 9 = .07$.
 (ii) $204 \div 17 = 12$. Dividend contains 4 places of decimal.
 $\therefore 0.0204 \div 17 = .0012$.
 (iii) $31603 \div 13 = 2431$. Dividend contains 4 places of decimal.
 $\therefore 3.1603 \div 13 = .2431$.

Ex. 12. Evaluate:

(i) $35 \div .07$ (ii) $2.5 \div 0.0005$ (iii) $136.09 \div 43.9$

Sol. (i) $\frac{35}{.07} = \frac{35 \times 100}{.07 \times 100} = \frac{3500}{7} = 500$.
 (ii) $\frac{2.5}{0.0005} = \frac{2.5 \times 10000}{0.0005 \times 10000} = \frac{25000}{5} = 5000$.
 (iii) $\frac{136.09}{43.9} = \frac{136.09 \times 10}{43.9 \times 10} = \frac{1360.9}{439} = 3.1$.

Ex. 13. What value will come in place of question mark in the following equations?

(i) $0.006 \div ? = 0.6$ (ii) $? \div .025 = 80$

Sol. (i) Let $\frac{0.006}{x} = 0.6$. Then, $x = \frac{0.006}{0.6} = \frac{0.006 \times 10}{0.6 \times 10} = \frac{0.06}{6} = 0.01$.
 (ii) Let $\frac{x}{.025} = 80$. Then, $x = 80 \times .025 = 2$.

Ex. 14. If $\frac{1}{3.718} = .2689$, then find the value of $\frac{1}{.0003718}$.

Sol. $\frac{1}{.0003718} = \frac{10000}{3.718} = \left(10000 \times \frac{1}{3.718} \right) = 10000 \times .2689 = 2689$.

Ex. 15. Evaluate:

(i) $0.5 \times 5.6 \div 0.5 \times 12$

(ii) $25 \times 3.25 + 50.4 \div 24$

(iii) $0.01 \times 0.1 - 0.001 \div 10 + 0.01$

(iv) $12.28 \times 1.5 - 36 \div 2.4$

(Bank Recruitment, 2010)

(Bank P.O., 2010)

(Bank P.O., 2009)

(Bank P.O., 2009)

Sol. (i) Given expression = $0.5 \times \frac{5.6}{0.5} \times 12 = \frac{5 \times 56 \times 12}{50} = \frac{3360}{50} = 67.2$.

(ii) Given expression = $25 \times 3.25 + \frac{50.4}{24} = 81.25 + 2.1 = 83.35$.

(iii) Given expression = $0.001 - \frac{0.001}{10} + 0.01 = 0.001 - 0.0001 + 0.01 = 0.011 - 0.0001 = 0.0109$.

(iv) Given expression = $12.28 \times 1.5 - \frac{36}{2.4} = 18.42 - 15 = 3.42$.

Ex. 16. The product of two numbers is 0.008 and one is $\frac{1}{5}$ of the other. Find the numbers.

(R.R.B., 2009)

Sol. Let the numbers be x and $\frac{x}{5}$. Then,

$$x \times \frac{x}{5} = 0.008 \Rightarrow \frac{x^2}{5} = 0.008 \Rightarrow x^2 = 0.008 \times 5 = 0.04 \Rightarrow x = \sqrt{0.04} = 0.2.$$

$$\therefore \text{Greater number} = 0.2. \text{ Smaller number} = \frac{0.2}{5} = 0.04.$$

Hence, the required numbers are 0.2 and 0.04.

Ex. 17. Express as vulgar fractions:

(S.S.C., 2010)

$$(i) \ 0.\overline{37} \quad (ii) \ 0.\overline{053} \quad (iii) \ 0.\overline{001} \quad (iv) \ 3.\overline{142857}$$

$$\text{Sol.} \quad (i) \ 0.\overline{37} = \frac{37}{99}. \quad (ii) \ 0.\overline{053} = \frac{53}{999}. \quad (iii) \ 0.\overline{001} = \frac{1}{999}. \quad (iv) \ 3.\overline{142857} = 3 + 0.\overline{142857} = 3 + \frac{142857}{999999} = 3\frac{142857}{999999}.$$

Ex. 18. Express as vulgar fractions:

$$(i) \ 0.\overline{17} \quad (ii) \ 0.\overline{1254} \quad (iii) \ 2.\overline{536}$$

$$\text{Sol.} \quad (i) \ 0.\overline{17} = \frac{17-1}{90} = \frac{16}{90} = \frac{8}{45}. \quad (ii) \ 0.\overline{1254} = \frac{1254-12}{9900} = \frac{1242}{9900} = \frac{69}{550}.$$

$$(iii) \ 2.\overline{536} = 2 + 0.\overline{536} = 2 + \frac{536-53}{900} = 2 + \frac{483}{900} = 2 + \frac{161}{300} = 2\frac{161}{300}.$$

Ex. 19. If $\frac{b}{a} = 0.25$, then what is the value of $\frac{2a-b}{2a+b} + \frac{2}{9}$?

(R.R.B., 2005)

$$\begin{aligned} \text{Sol.} \quad \frac{2a-b}{2a+b} + \frac{2}{9} &= \frac{2 - \frac{b}{a}}{2 + \frac{b}{a}} + \frac{2}{9} \quad [\text{Dividing numerator and denominator by } a] \\ &= \frac{2 - 0.25}{2 + 0.25} + \frac{2}{9} = \frac{1.75}{2.25} + \frac{2}{9} = \frac{7}{9} + \frac{2}{9} = \frac{9}{9} = 1. \end{aligned}$$

Ex. 20. Find the value of $(1.99)^2$.

(Campus Recruitment, 2009)

$$\text{Sol.} \quad (1.99)^2 = (2 - 0.01)^2 = 2^2 + (0.01)^2 - 2 \times 2 \times 0.01 = 4 + 0.0001 - 0.04 = 3.9601.$$

Ex. 21. Simplify: $\sqrt{\frac{0.009 \times 0.036 \times 0.016 \times 0.08}{0.002 \times 0.0008 \times 0.0002}}$

(S.S.C., 2010)

Sol. Since the sum of the decimal places in the numerator and denominator is the same, we have:

$$\text{Given expression} = \sqrt{\frac{9 \times 36 \times 16 \times 8}{2 \times 8 \times 2}} = \sqrt{1296} = 36.$$

Ex. 22. Simplify: $\frac{(0.35)^2 - (0.03)^2}{0.19}$

(R.R.B., 2006)

$$\text{Sol.} \quad \text{Given expression} = \frac{(0.35 + 0.03)(0.35 - 0.03)}{0.19} = \frac{0.38 \times 0.32}{0.19} = 2 \times 0.32 = 0.64.$$

Ex. 23. Find the value of $\frac{0.21 \times 0.21 \times 0.21 + 0.021 \times 0.021 \times 0.021}{0.63 \times 0.63 \times 0.63 + 0.063 \times 0.063 \times 0.063}$

(S.S.C., 2006)

Sol. Let $a = 0.21$ and $b = 0.021$. Then,

$$\text{Given expression} = \frac{a^3 + b^3}{(3a)^3 + (3b)^3} = \frac{a^3 + b^3}{27a^3 + 27b^3} = \frac{a^3 + b^3}{27(a^3 + b^3)} = \frac{1}{27}.$$

Ex. 24. Simplify:

$$(i) \left(\frac{2.75 \times 2.75 \times 2.75 - 2.25 \times 2.25 \times 2.25}{2.75 \times 2.75 + 2.75 \times 2.25 + 2.25 \times 2.25} \right)$$

(C.P.O., 2007)

$$(ii) \left(\frac{0.0347 \times 0.0347 \times 0.0347 + 0.9653 \times 0.9653 \times 0.9653}{0.0347 \times 0.0347 - 0.0347 \times 0.9653 + 0.9653 \times 0.9653} \right)$$

(S.S.C., 2007)

Sol. (i) Given expression = $\left(\frac{a^3 - b^3}{a^2 + ab + b^2}\right)$, where $a = 2.75$, $b = 2.25$
 $= (a - b) = (2.75 - 2.25) = 0.5$.

(ii) Given expression = $\left(\frac{a^3 + b^3}{a^2 - ab + b^2}\right)$, where $a = 0.0347$, $b = 0.9653$
 $= (a + b) = (0.0347 + 0.9653) = 1$.

Ex. 25. Find the value of: $\frac{(0.01)^2 + (0.22)^2 + (0.333)^2}{(0.001)^2 + (0.022)^2 + (0.0333)^2}$.

Sol. Given expression = $\frac{a^2 + b^2 + c^2}{\left(\frac{a}{10}\right)^2 + \left(\frac{b}{10}\right)^2 + \left(\frac{c}{10}\right)^2}$, where $a = 0.01$, $b = 0.022$, $c = 0.0333 = \frac{100(a^2 + b^2 + c^2)}{(a^2 + b^2 + c^2)} = 100$.

EXERCISE

(OBJECTIVE TYPE QUESTIONS)

Directions: Mark (✓) against the correct answer:

1. The value of $\frac{42}{10000}$ in decimal fraction is

(L.I.C.A.D.O., 2008)

- (a) .0042 (b) .00042
(c) .0420 (d) 42000

2. The fraction $101\frac{27}{100000}$ in decimal form is

- (a) .01027 (b) .10127
(c) 101.00027 (d) 101.000027

3. When .36 is written in simplest fractional form, the sum of the numerator and the denominator is

- (a) 15 (b) 34
(c) 114 (d) 135

4. The place value of 9 in 0.06945 is (L.I.C.A.D.O., 2008)

- (a) 9 (b) $\frac{9}{10}$
(c) $\frac{9}{100}$ (d) $\frac{9}{1000}$

5. What decimal of an hour is a second?

- (a) .0025 (b) .0256
(c) .00027 (d) .000126

6. If $47.2506 = 4A + \frac{7}{B} + 2C + \frac{5}{D} + 6E$, then the value of $5A + 3B + 6C + D + 3E$ is

- (a) 53.6003 (b) 53.6031
(c) 153.6003 (d) 213.0003

7. Express $\frac{1999}{2111}$ in decimal.

(R.R.B., 2006)

- (a) 0.893 (b) 0.904
(c) 0.946 (d) 0.986

8. How many times is 0.1 greater than 0.01?

- (a) 1 time (b) 10 times
(c) 100 times (d) 1000 times

9. Out of the fractions $\frac{3}{7}, \frac{4}{11}, \frac{5}{9}, \frac{6}{13}, \frac{7}{12}$, which is the second largest? (Bank Recruitment, 2010)

- (a) $\frac{3}{7}$ (b) $\frac{4}{11}$
(c) $\frac{5}{9}$ (d) $\frac{6}{13}$
(e) $\frac{7}{12}$

10. Which of the following has fractions in ascending order?

- (a) $\frac{2}{3}, \frac{3}{5}, \frac{7}{9}, \frac{9}{11}, \frac{8}{9}$ (b) $\frac{3}{5}, \frac{2}{3}, \frac{9}{11}, \frac{7}{9}, \frac{8}{9}$
(c) $\frac{3}{5}, \frac{2}{3}, \frac{7}{9}, \frac{9}{11}, \frac{8}{9}$ (d) $\frac{8}{9}, \frac{9}{11}, \frac{7}{9}, \frac{2}{3}, \frac{3}{5}$
(e) $\frac{8}{9}, \frac{9}{11}, \frac{7}{9}, \frac{3}{5}, \frac{2}{3}$

11. Which of the following are in descending order of their values?

- (a) $\frac{5}{9}, \frac{7}{11}, \frac{8}{15}, \frac{11}{17}$ (b) $\frac{5}{9}, \frac{8}{15}, \frac{11}{17}, \frac{7}{11}$
(c) $\frac{11}{17}, \frac{7}{11}, \frac{8}{15}, \frac{5}{9}$ (d) $\frac{11}{17}, \frac{7}{11}, \frac{5}{9}, \frac{8}{15}$

12. What is the difference between the biggest and the smallest fraction among $\frac{2}{3}, \frac{3}{4}, \frac{4}{5}$ and $\frac{5}{6}$? (S.S.C., 2006)

- (a) $\frac{1}{6}$ (b) $\frac{1}{12}$
(c) $\frac{1}{20}$ (d) $\frac{1}{30}$

13. The least among the following fractions is (S.S.C., 2010)
- (a) $\frac{15}{16}$ (b) $\frac{19}{20}$
 (c) $\frac{24}{25}$ (d) $\frac{34}{35}$
14. Out of the fractions $\frac{9}{31}, \frac{3}{17}, \frac{6}{23}, \frac{4}{11}$ and $\frac{7}{25}$, which is the largest? (Bank Recruitment, 2010)
- (a) $\frac{9}{31}$ (b) $\frac{3}{17}$
 (c) $\frac{6}{23}$ (d) $\frac{4}{11}$
 (e) None of these
15. If the fractions $\frac{2}{5}, \frac{3}{8}, \frac{4}{9}, \frac{5}{13}$ and $\frac{6}{11}$ are arranged in ascending order of their values, which one will be the fourth? (S.B.I.P.O., 2008)
- (a) $\frac{2}{5}$ (b) $\frac{3}{8}$
 (c) $\frac{4}{9}$ (d) $\frac{5}{13}$
 (e) None of these
16. Which part contains the fractions in ascending order?
- (a) $\frac{11}{14}, \frac{16}{19}, \frac{19}{21}$ (b) $\frac{16}{19}, \frac{11}{14}, \frac{19}{21}$
 (c) $\frac{16}{19}, \frac{19}{21}, \frac{11}{14}$ (d) $\frac{19}{21}, \frac{11}{14}, \frac{16}{19}$
17. Which of the following fractions is the smallest?
- (a) $\frac{13}{16}$ (b) $\frac{15}{19}$
 (c) $\frac{17}{21}$ (d) $\frac{7}{8}$
18. Which of the following fractions is greater than $\frac{3}{4}$ and less than $\frac{5}{6}$?
- (a) $\frac{1}{2}$ (b) $\frac{2}{3}$
 (c) $\frac{4}{5}$ (d) $\frac{9}{10}$
19. Which of the following fractions is less than $\frac{7}{8}$ and greater than $\frac{1}{3}$?
- (a) $\frac{1}{4}$ (b) $\frac{23}{24}$
 (c) $\frac{11}{12}$ (d) $\frac{17}{24}$
20. Which of the following numbers does not lie between $\frac{4}{5}$ and $\frac{7}{13}$?
- (a) $\frac{1}{2}$ (b) $\frac{2}{3}$
 (c) $\frac{3}{4}$ (d) $\frac{5}{7}$
21. The arrangement of rational numbers $\frac{-7}{10}, \frac{5}{-8}, \frac{2}{-3}$ in ascending order is
- (a) $\frac{2}{-3}, \frac{5}{-8}, \frac{-7}{10}$ (b) $\frac{5}{-8}, \frac{-7}{10}, \frac{2}{-3}$
 (c) $\frac{-7}{10}, \frac{5}{-8}, \frac{2}{-3}$ (d) $\frac{-7}{10}, \frac{2}{-3}, \frac{5}{-8}$
22. Which of the following fractions lies between $\frac{2}{3}$ and $\frac{3}{5}$? (C.P.O., 2006)
- (a) $\frac{2}{5}$ (b) $\frac{1}{3}$
 (c) $\frac{1}{15}$ (d) $\frac{31}{50}$
23. Which of the following fractions is less than $\frac{1}{5}$? (R.R.B., 2006)
- (a) $\frac{8}{35}$ (b) $\frac{8}{37}$
 (c) $\frac{8}{39}$ (d) $\frac{2}{11}$
24. Which of the following fractions is nearest to $\frac{2}{5}$? (R.R.B., 2006)
- (a) $\frac{4}{5}$ (b) $\frac{21}{50}$
 (c) $\frac{20001}{50000}$ (d) $\frac{200001}{500000}$
25. The rational numbers lying between $\frac{1}{3}$ and $\frac{3}{4}$ are
- (a) $\frac{117}{300}, \frac{287}{400}$ (b) $\frac{95}{300}, \frac{301}{400}$
 (c) $\frac{99}{300}, \frac{301}{400}$ (d) $\frac{97}{300}, \frac{299}{500}$
26. Three rational numbers between $\frac{1}{5}$ and $\frac{1}{6}$ are
- (a) $\frac{4}{25}, \frac{9}{50}, \frac{17}{100}$ (b) $\frac{4}{25}, \frac{17}{100}, \frac{167}{1000}$
 (c) $\frac{4}{25}, \frac{9}{50}, \frac{167}{1000}$ (d) $\frac{9}{50}, \frac{17}{100}, \frac{167}{1000}$

27. $0.3 + 3 + 3.33 + 3.3 + 3.03 + 333 = ?$ (NABARD, 2009)
 (a) 345.99 (b) 355.96
 (c) 375.66 (d) 375.93
 (e) None of these
28. $636.66 + 366.36 + 363.33 = ?$ (Bank Recruitment, 2009)
 (a) 1336.35 (b) 1363.25
 (c) 1366.25 (d) 1636.25
 (e) None of these
29. $24.424 + 5.656 + 1.131 + 0.089 = ?$ (Bank P.O., 2009)
 (a) 31.003 (b) 31.3
 (c) 31.0003 (d) 31.03
 (e) None of these
30. $555.05 + 55.5 + 5.55 + 5 + 0.55 = ?$ (S.B.I.P.O., 2008)
 (a) 621.65 (b) 634.85
 (c) 647.35 (d) 655.75
 (e) None of these
31. $4 + 4.44 + 0.4 + 44.04 + 444 = ?$ (Bank P.O., 2008)
 (a) 469.88 (b) 487.66
 (c) 496.88 (d) 497.24
 (e) None of these
32. $999.99 + 99.99 + 9.99 = ?$ (Bank Recruitment, 2008)
 (a) 1019.89 (b) 1099.88
 (c) 1108.99 (d) 1109.99
 (e) None of these
33. $10.0001 + 9.9999 - 8.9995 = ?$ (E.P.F.O.S.S.A., 2004)
 (a) 9.0005 (b) 10.9995
 (c) 11.0001 (d) 11.0005
 (e) None of these
34. $48.95 - 32.006 = ?$
 (a) 16.089 (b) 16.35
 (c) 16.89 (d) 16.944
35. $58.621 - 13.829 - 7.302 - 1.214 = ?$ (Bank P.O., 2009)
 (a) 31.254 (b) 35.272
 (c) 36.276 (d) 37.281
 (e) None of these
36. $341.42 - 53.74 = ? - 62.86$ (Bank Recruitment, 2010)
 (a) 260.44 (b) 340.44
 (c) 350.54 (d) 450.54
 (e) None of these
37. $534.596 + 61.472 - 496.708 = ? + 27.271$ (Bank P.O., 2010)
 (a) 62.069 (b) 72.089
 (c) 126.631 (d) 132.788
 (e) None of these
38. $11.71 - 0.86 + 1.78 - 9.20 = ?$ (Bank Recruitment, 2010)
 (a) 2.43 (b) 3.13
 (c) 3.43 (d) 4.13
 (e) None of these
39. $726.34 + 888.12 - ? = 1001.88$ (Bank P.O., 2009)
 (a) 602.64 (b) 618.78
 (c) 621.58 (d) 654.54
 (e) None of these
40. $832.58 - 242.31 = 779.84 - ?$
 (a) 179.57 (b) 199.57
 (c) 295.05 (d) None of these
41. Which one of the following is wrong?
 (a) $\frac{9}{4} + 1.75 = 4$ (b) $\frac{9}{5} + 2.2 = 4$
 (c) $\frac{6}{5} + 2.8 = 4$ (d) $\frac{3}{2} + 1.5 = 4$
42. If $x = 10$ and $y = 0.1$, which of the following is the greatest?
 (a) $x^2 + y^2$ (b) $x^2 - y^2$
 (c) $x^2 y^2$ (d) $\frac{x^2}{y^2}$
43. Which of the following is closest to zero?
 (a) $(0.09)^2$ (b) 0.09
 (c) $(1 - 0.9)^2$ (d) $1 - (0.9)^2$ (M.C.A., 2005)
44. One hundredth of centimetre when written in fractions of kilometres, is equal to (M.C.A., 2005)
 (a) 0.0000001 (b) 0.000001
 (c) 0.0001 (d) 0.001
45. What will come in place of question mark in the following equation?
 $54.(?)3 + 543 + 5.43 = 603.26$
 (a) 5 (b) 6
 (c) 8 (d) None of these
46. Which of the following is equal to 3.14×10^6 ?
 (a) 314 (b) 3140
 (c) 3140000 (d) None of these (Hotel Management, 2003)
47. The number 518,000,000 when expressed in scientific notation, equals
 (a) 51.8×10^6 (b) 51.8×10^7
 (c) 5.18×10^8 (d) 5.18×10^9
48. 0.000006723 when expressed in scientific notation, is
 (a) 6723×10^{-5} (b) 67.23×10^{-7}
 (c) 6.723×10^{-6} (d) None of these
49. If $1.125 \times 10^k = 0.001125$, then the value of k is:
 (a) -4 (b) -3
 (c) -2 (d) -1
50. $(0.1 \times 0.01 \times 0.001 \times 10^7)$ is equal to (S.S.C., 2010)
 (a) $\frac{1}{10}$ (b) $\frac{1}{100}$
 (c) 10 (d) 100

51. $383 \times 38 \times 3.8 = ?$ (Bank P.O., 2008)
 (a) 55305.2 (b) 56305.4
 (c) 57305.6 (d) 58305.8
 (e) None of these
52. The product of 0.09 and 0.007 is (L.I.C.A.D.O., 2008)
 (a) 0.6300 (b) 0.00063
 (c) 0.00630 (d) 0.000063
53. $0.1 \times 0.01 \times 0.001 = ?$ (M.C.A., 2005)
 (a) 0.0001 (b) 0.00001
 (c) 0.000001 (d) 0.0000001
54. $3 \times 0.3 \times 0.03 \times 0.003 \times 30 = ?$
 (a) 0.0000243 (b) 0.000243
 (c) 0.00243 (d) 0.0243
55. $14.4 \times 16.5 \times 8 = ?$ (Bank P.O., 2009)
 (a) 1908.0 (b) 1900.8
 (c) 1912.4 (d) 1924.8
56. $47.7 \times 12.4 \times 8.6 = ?$ (Bank Recruitment, 2009)
 (a) 5086.728 (b) 5218.668
 (c) 5708.428 (d) 6180.656
 (e) None of these
57. $32.4 \times 11.5 \times 8.5 = ?$ (Bank Recruitment, 2009)
 (a) 3149.5 (b) 3129.1
 (c) 3167.1 (d) 3162.5
 (e) None of these
58. 0.04×0.0162 is equal to
 (a) 6.48×10^{-3} (b) 6.48×10^{-4}
 (c) 6.48×10^{-5} (d) 6.48×10^{-6}
59. How many digits will be there to the right of the decimal point in the product of 95.75 and .02554?
 (a) 5 (b) 6
 (c) 7 (d) None of these
60. $\left(.00625 \text{ of } \frac{23}{5} \right)$ when expressed as a vulgar fraction, equals
 (a) $\frac{23}{80}$ (b) $\frac{23}{800}$
 (c) $\frac{23}{8000}$ (d) $\frac{125}{23}$
61. Which is the closest approximation to the following product?
 $0.3333 \times 0.25 \times 0.499 \times 0.125 \times 24$
 (a) $\frac{1}{8}$ (b) $\frac{3}{4}$
 (c) $\frac{3}{8}$ (d) $\frac{2}{5}$
62. The number 0.0561 correct to two places of decimals is
 (a) 0.1 (b) 0.06
 (c) 0.05 (d) 0.056
63. $(0.05 \times 5 - 0.005 \times 5)$ equals (S.S.C., 2005)
 (a) 0.0225 (b) 0.225
 (c) 0.250 (d) 0.275
64. $19.99 \times 9.9 + 99.9 = ?$ (NABARD, 2008)
 (a) 129.79 (b) 297.801
 (c) 1009 (d) 296.910
 (e) None of these
65. $345 + 25 \times 0.80 - 111 = ?$ (Bank P.O., 2008)
 (a) 254 (b) 324
 (c) 666 (d) 600
 (e) None of these
66. $29.92 \times 2.4 + 21.28 \times 4.5 = ?$ (Bank P.O., 2009)
 (a) 167.568 (b) 167.658
 (c) 176.568 (d) 176.658
 (e) None of these
67. $4.4 \times 5.8 \times 11.5 - 141.27 = ?$ (Bank Recruitment, 2009)
 (a) 121.17 (b) 147.51
 (c) 152.21 (d) 187.95
 (e) None of these
68. Consider the following quotients:
 1. 368.39 divided by 17 2. 170.50 divided by 62
 3. 875.65 divided by 83
 Their correct sequence in decreasing order is:
 (a) 1, 3, 2 (b) 2, 1, 3
 (c) 2, 3, 1 (d) 3, 1, 2
69. $0.213 \div 0.00213 = ?$
 (a) 1 (b) 10
 (c) 100 (d) None of these
70. $\frac{25.025}{0.025}$ is equal to (R.R.B., 2004)
 (a) 1.01 (b) 10.1
 (c) 101 (d) 1001
71. 4.036 divided by 0.04 gives (Hotel Management, 2003)
 (a) 1.009 (b) 10.09
 (c) 100.9 (d) None of these
72. $\frac{1}{0.04}$ is equal to
 (a) $\frac{1}{40}$ (b) $\frac{2}{5}$
 (c) 2.5 (d) 25
73. $(833.25 - 384.45) \div 24 = ?$ (Bank P.O., 2010)
 (a) 1.87 (b) 2.01
 (c) 18.7 (d) 20.1
 (e) None of these
74. $6425 \div 125 \times 8 = ?$ (Bank Recruitment, 2009)
 (a) 41.12 (b) 64.25
 (c) 411.2 (d) 421.25
 (e) None of these

75. $7777 \div 77 \div 5 = ?$ (Bank Recruitment, 2009)
 (a) 15.2 (b) 18.5
 (c) 22.4 (d) 50.5
 (e) None of these
76. $(0.75 \times 4.4 \times 2.4) \div 0.6 = ?$ (Bank Recruitment, 2009)
 (a) 4.752 (b) 12
 (c) 13.2 (d) 15.84
 (e) None of these
77. $\left(\frac{0.05}{0.25} + \frac{0.25}{0.05}\right)^3 = ?$
 (a) 139.4 (b) 140
 (c) 140.6 (d) 143.9
78. The value of $0.0396 \div 2.51$ correct to 2 significant figures is
 (a) 0.015 (b) 0.0157
 (c) 0.016 (d) 0.017
79. $3927 + 5526 \div 12.5 = ?$ (L.I.C.A.D.O., 2007)
 (a) 750.24 (b) 756.24
 (c) 4369.08 (d) 4369.24
 (e) None of these
80. $(11.6 \div 0.8) (13.5 \div 2) = ?$ (R.R.B., 2008)
 (a) 98 (b) 99
 (c) 100 (d) None of these
81. $(0.05 \times 6.25) \div 2.5 = ?$ (Bank P.O., 2008)
 (a) 0.95 (b) 0.105
 (c) 0.115 (d) 1.25
 (e) None of these
82. $0.5 \times 0.5 + 0.5 \div 5$ is equal to (L.I.C.A.D.O., 2008)
 (a) 0.15 (b) 0.25
 (c) 0.35 (d) 0.45
83. $400 \div 0.1 \times 0.2 = ?$
 (a) 0.8 (b) 8
 (c) 80 (d) 8000
 (e) None of these
84. $5.5 - [6.5 - \{3.5 \div (6.5 - \overline{5.5 - 2.5})\}]$ is equal to
 (a) -1 (b) 0
 (c) 0.1 (d) 1
85. $.04 \times ? = .000016$
 (a) 0.0004 (b) 0.04
 (c) 4 (d) None of these
86. $\frac{.009}{?} = .01$
 (a) .0009 (b) .09
 (c) .9 (d) 9
87. If $\frac{144}{0.144} = \frac{14.4}{x}$, then the value of x is
 (a) 0.0144 (b) 1.44
 (c) 14.4 (d) 144
88. $40.04 \div 0.4 = ? \times 0.05$
 (a) 20.02 (b) 20.2
 (c) 200.2 (d) 2002
89. $48 \div 75 \times 84.5 \div 20 = ?$ (Bank P.O., 2006)
 (a) 1.527 (b) 1.834
 (c) 2.704 (d) 2.914
 (e) None of these
90. $(5420 + 3312 \div ?) \div 600 = 25.93$ (Bank Recruitment, 2009)
 (a) 6286 (b) 6584
 (c) 6826 (d) 6830
 (e) None of these
91. $[(?)^2 + (18)^2] \div 125 = 3.56$ (Bank Recruitment, 2009)
 (a) 11 (b) 12
 (c) 14 (d) 15
 (e) None of these
92. $786 \div 24 \times ? = 6.55$
 (a) 0.2 (b) 0.4
 (c) 4 (d) 5
 (e) None of these
93. A maximum of how many pieces of 12.6 cm can be cut from a 857 cm long rod?
 (a) 58 (b) 62
 (c) 64 (d) 68
94. Vishal donates blood thrice in 2 years – each time 350 ml. How many litres of blood will he donate in 6 years? (Bank Recruitment, 2010)
 (a) 1.2 (b) 3.15
 (c) 4.5 (d) 6.3
 (e) None of these
95. Terry consumes 1600 ml of milk everyday. How many litres of milk will she consume in 4 weeks? (Bank Recruitment, 2010)
 (a) 41.6 (b) 42.6
 (c) 43.4 (d) 44.8
 (e) None of these
96. A tailor has 37.5 metres of cloth and he has to make 8 pieces out of a metre of cloth. How many pieces can be made out of this cloth?
 (a) 320 (b) 360
 (c) 400 (d) None of these
97. The price of commodity X increases by 40 paise every year, while the price of commodity Y increases by 15 paise every year. If in 2004, the price of commodity X was ₹ 4.20 and that of Y was ₹ 6.30, in which year commodity X will cost 40 paise more than the commodity Y?
 (a) 2013 (b) 2014
 (c) 2015 (d) 2016

98. A sum of ₹ 6.25 is made up of 80 coins which are either 10P or 5P. How many are there of each kind?
(A.T.M.A., 2006)
- (a) 45, 35 (b) 40, 40
(c) 35, 45 (d) 25, 55
99. The number 0.121212 in the form $\frac{p}{q}$ is equal to
(S.S.C., 2010)
- (a) $\frac{2}{11}$ (b) $\frac{4}{11}$
(c) $\frac{2}{33}$ (d) $\frac{4}{33}$
100. The rational number for the recurring decimal 0.125125 is
- (a) $\frac{63}{487}$ (b) $\frac{119}{993}$
(c) $\frac{125}{999}$ (d) None of these
101. When $0.\overline{47}$ is converted into a fraction, the result is
(Section Officers', 2003)
- (a) $\frac{46}{90}$ (b) $\frac{46}{99}$
(c) $\frac{47}{90}$ (d) $\frac{47}{99}$
102. $0.\overline{36}$ expressed in the form $\frac{p}{q}$ equals
- (a) $\frac{4}{11}$ (b) $\frac{4}{13}$
(c) $\frac{35}{90}$ (d) $\frac{35}{99}$
103. The least among the following is
- (a) 0.2 (b) $1 \div 0.2$
(c) $0.\overline{2}$ (d) $(0.2)^2$
104. $1.\overline{27}$ in the form $\frac{p}{q}$ is equal to
(S.S.C., 2010)
- (a) $\frac{127}{100}$ (b) $\frac{14}{11}$
(c) $\frac{73}{100}$ (d) $\frac{11}{14}$
105. $0.4\overline{23}$ is equivalent to the fraction
(C.P.O., 2005)
- (a) $\frac{94}{99}$ (b) $\frac{49}{99}$
(c) $\frac{491}{990}$ (d) $\frac{419}{990}$
106. Express $0.29\overline{56}$ in the form $\frac{p}{q}$ (vulgar fraction)
(R.R.B., 2005)
- (a) $\frac{2956}{1000}$ (b) $\frac{2956}{10000}$
(c) $\frac{2927}{9900}$ (d) None of these
107. Let $F = 0.841\overline{81}$. When F is written as a fraction in lowest terms, the denominator exceeds the numerator by
- (a) 13 (b) 14
(c) 29 (d) 87
108. The value of $4.1\overline{2}$ is
- (a) $4\frac{11}{90}$ (b) $4\frac{11}{99}$
(c) $\frac{371}{900}$ (d) None of these
109. $2.8\overline{768}$ is equal to
(C.P.O., 2006)
- (a) $2\frac{878}{999}$ (b) $2\frac{9}{10}$
(c) $2\frac{292}{333}$ (d) $2\frac{4394}{4995}$
110. The value of $(0.\overline{2} + 0.\overline{3} + 0.\overline{32})$ is
(S.S.C., 2005)
- (a) $0.\overline{77}$ (b) $0.\overline{82}$
(c) $0.8\overline{6}$ (d) $0.8\overline{7}$
111. $0.1428\overline{57} \div 0.2857\overline{14}$ is equal to
(S.S.C., 2007)
- (a) $\frac{1}{2}$ (b) $\frac{1}{3}$
(c) 2 (d) 10
112. $3.8\overline{7} - 2.5\overline{9} = ?$
- (a) 1.20 (b) $1.\overline{2}$
(c) $1.\overline{27}$ (d) $1.\overline{28}$
113. The simplification of $3.\overline{36} - 2.0\overline{5} + 1.\overline{33}$ equals
- (a) 2.60 (b) 2.64
(c) 2.61 (d) $2.\overline{64}$
114. $(0.\overline{09} \times 7.\overline{3})$ is equal to:
(S.S.C., 2003)
- (a) $\overline{.6}$ (b) $\overline{.657}$
(c) $\overline{.67}$ (d) $\overline{.65\overline{7}}$
115. $(0.34\overline{67} + 0.13\overline{33})$ is equal to (Hotel Management, 2002)
- (a) $0.4\overline{8}$ (b) $0.4\overline{8}$
(c) $0.480\overline{1}$ (d) 0.48
116. $(8.3\overline{1} + 0.\overline{6} + 0.00\overline{2})$ is equal to
(S.S.C., 2005)
- (a) $8.9\overline{12}$ (b) $8.9\overline{12}$
(c) $8.9\overline{79}$ (d) $8.9\overline{79}$
117. The sum of $\overline{2.75}$ and $\overline{3.78}$ is
- (a) $\overline{1.03}$ (b) $\overline{1.53}$
(c) $\overline{4.53}$ (d) $\overline{5.53}$

118. If $\frac{547.527}{0.0082} = x$, then the value of $\frac{547527}{82}$ is
 (a) $\frac{x}{10}$ (b) $10x$
 (c) $100x$ (d) None of these
119. If $2994 \div 14.5 = 172$, then $29.94 \div 1.45 = ?$
 (a) 0.172 (b) 1.72
 (c) 17.2 (d) 172
120. If $213 \times 16 = 3408$, then 1.6×21.3 is equal to
 (a) 0.3408 (b) 3.408
 (c) 34.08 (d) 340.8
121. If $\frac{1}{6.198} = 0.16134$, then the value of $\frac{1}{0.0006198}$ is
 (a) 0.016134 (b) 0.16134
 (c) 1613.4 (d) 16134
122. When 52416 is divided by 312, the quotient is 168. What will be the quotient when 52.416 is divided by 0.0168?
 (a) 3.12 (b) 312
 (c) 3120 (d) None of these
123. Given $168 \times 32 = 5376$, then $5.376 \div 16.8$ is equal to
 (a) 0.032 (b) 0.32
 (c) 3.2 (d) 32
124. $54.327 \times 357.2 \times 0.0057$ is the same as
 (a) $5.4327 \times 3.572 \times 5.7$
 (b) $5.4327 \times 3.572 \times 0.57$
 (c) $54327 \times 3572 \times 0.0000057$
 (d) None of these
125. $\frac{5.3472 \times 324.23}{3.489 \times 5.42}$ is the same as
 (a) $\frac{53472 \times 3.2423}{3.489 \times 54.2}$ (b) $\frac{53472 \times 32423}{3489 \times 542}$
 (c) $\frac{534.72 \times 324.23}{34.89 \times 5.42}$ (d) $\frac{53472 \times 3242.3}{3489 \times 542}$
126. $\frac{96.54 - 89.63}{96.54 + 89.63} \div \frac{965.4 - 896.3}{9.654 + 8.963} = ?$
 (a) 10^{-2} (b) 10^{-1}
 (c) 10 (d) None of these
127. If $1^3 + 2^3 + \dots + 9^3 = 2025$, then the value of $(0.11)^3 + (0.22)^3 + \dots + (0.99)^3$ is close to:
 (a) 0.2695 (b) 0.3695
 (c) 2.695 (d) 3.695
128. The value of $\frac{1}{4} + \frac{1}{4 \times 5} + \frac{1}{4 \times 5 \times 6}$ correct to 4 decimal places is
 (a) 0.3075 (b) 0.3082
 (c) 0.3083 (d) 0.3085
129. Find the value of the following expression upto four places of decimals.

$$\left[1 + \frac{1}{1 \times 2} + \frac{1}{1 \times 2 \times 4} + \frac{1}{1 \times 2 \times 4 \times 8} + \frac{1}{1 \times 2 \times 4 \times 8 \times 16} \right]$$

 (a) 1.6414 (b) 1.6415
 (c) 1.6416 (d) 1.6428
130. The sum of the first 20 terms of the series $\frac{1}{5 \times 6} + \frac{1}{6 \times 7} + \frac{1}{7 \times 8} + \dots$ is
 (a) 0.16 (b) 1.6
 (c) 16 (d) None of these
131. The last digit in the decimal representation of $\left(\frac{1}{5}\right)^{2000}$ is (Hotel Management, 2010)
 (a) 2 (b) 4
 (c) 5 (d) 6
132. Which of the following is equal to 1?
 (a) $\frac{(0.11)^2}{(1.1)^2 \times 0.1}$ (b) $\frac{(1.1)^2}{11^2 \times (0.01)^2}$
 (c) $\frac{(0.011)^2}{(1.1)^2 \times (0.01)^2}$ (d) $\frac{(0.11)^2}{11^2 \times 0.01}$
133. The expression $\frac{3}{4} + \frac{5}{36} + \frac{7}{144} + \dots + \frac{17}{5184} + \frac{19}{8100}$ is equal to (A.A.O. Exam, 2010)
 (a) 0.9 (b) 0.95
 (c) 0.99 (d) 1.91
134. If $1.5x = 0.04y$, then the value of $\left(\frac{y-x}{y+x}\right)$ is (N.M.A.T. 2006; M.B.A. 2007; S.S.C. 2010)
 (a) $\frac{730}{77}$ (b) $\frac{73}{77}$
 (c) $\frac{7.3}{77}$ (d) None of these
135. The value of $\left[35.7 - \left(3 + \frac{1}{3 + \frac{1}{3}} \right) - \left(2 + \frac{1}{2 + \frac{1}{2}} \right) \right]$ is
 (a) 30 (b) 34.8
 (c) 36.6 (d) 41.4
136. $\frac{(0.1667)(0.8333)(0.3333)}{(0.2222)(0.6667)(0.1250)}$ is approximately equal to
 (a) 2 (b) 2.40
 (c) 2.43 (d) 2.50

137. $\frac{3.5 \times 1.4}{0.7} = ?$ (L.I.C.A.D.O., 2007)
 (a) 0.7 (b) 2.4
 (c) 3.5 (d) 7.1
 (e) None of these
138. $\frac{1.6 \times 3.2}{0.08} = ?$ (Bank Recruitment, 2007)
 (a) 0.8 (b) 6.4
 (c) 8 (d) 64
 (e) None of these
139. $\frac{4.41 \times 0.16}{2.1 \times 1.6 \times 0.21}$ is simplified to (S.S.C., 2010)
 (a) 1 (b) 0.1
 (c) 0.01 (d) 10
140. $\frac{.625 \times .0729 \times 28.9}{.0081 \times .025 \times 1.7} = ?$ (I.I.F.T. 2005)
 (a) 382.5 (b) 3625
 (c) 3725 (d) 3825
 (e) None of these
141. The value of $\frac{3.6 \times 0.48 \times 2.50}{0.12 \times 0.09 \times 0.5}$ is
 (a) 80 (b) 800
 (c) 8000 (d) 80000
142. $\frac{0.0203 \times 2.92}{0.0073 \times 14.5 \times 0.7} = ?$
 (a) 0.8 (b) 1.45
 (c) 2.40 (d) 3.25
143. The value of $\frac{3.157 \times 4126 \times 3.198}{63.972 \times 2835.121}$ is closest to
 (a) 0.002 (b) 0.02
 (c) 0.2 (d) 2
144. The value of $\frac{489.1375 \times 0.0483 \times 1.956}{0.0873 \times 92.581 \times 99.749}$ is closet to
 (a) 0.006 (b) 0.06
 (c) 0.6 (d) 6
145. The value of $\frac{241.6 \times 0.3814 \times 6.842}{0.4618 \times 38.25 \times 73.65}$ is close to
 (a) 0.2 (b) 0.4
 (c) 0.6 (d) 1
146. $(0.2 \times 0.2 + 0.01) (0.1 \times 0.1 + 0.02)^{-1}$ is equal to (Section Officers', 2003)
 (a) $\frac{5}{3}$ (b) $\frac{9}{5}$
 (c) $\frac{41}{4}$ (d) $\frac{41}{12}$
147. $\frac{5 \times 1.6 - 2 \times 1.4}{1.3} = ?$
 (a) 0.4 (b) 1.2
 (c) 1.4 (d) 4
148. The value of $(4.7 \times 13.26 + 4.7 \times 9.43 + 4.7 \times 77.31)$ is: (IGNOU, 2003)
 (a) 0.47 (b) 47
 (c) 470 (d) 4700
149. Simplify : $\frac{0.2 \times 0.2 + 0.2 \times 0.02}{0.044}$.
 (a) 0.004 (b) 0.4
 (c) 1 (d) 2
150. The value of $\left(\frac{8.6 \times 5.3 + 8.6 \times 4.7}{4.3 \times 9.7 - 4.3 \times 8.7} \right)$ is
 (a) 3.3 (b) 6.847
 (c) 13.9 (d) 20
151. The value of $\left(\frac{.896 \times .763 + .896 \times .237}{.7 \times .064 + .7 \times .936} \right)$ is
 (a) .976 (b) 9.76
 (c) 1.28 (d) 12.8
152. The value of $(1.25)^3 - 2.25 (1.25)^2 + 3.75 (0.75)^2 - (0.75)^3$ is
 (a) 1 (b) $\frac{1}{2}$
 (c) $\frac{1}{4}$ (d) $\frac{1}{8}$
153. $(78.95)^2 - (43.35)^2 = ?$ (S.B.I.P.O., 2008)
 (a) 4148 (b) 4235.78
 (c) 4305 (d) 4353.88
 (e) None of these
154. The value of $\frac{(75.8)^2 - (55.8)^2}{20}$ is
 (a) 20 (b) 40
 (c) 121.6 (d) 131.6
155. $\frac{(3.63)^2 - (2.37)^2}{3.63 + 2.37}$ is simplified to (C.P.O., 2006)
 (a) 1.26 (b) 1.36
 (c) 2.26 (d) 6
156. $\frac{(36.54)^2 - (3.46)^2}{?} = 40$
 (a) 3.308 (b) 4
 (c) 33.08 (d) 330.8
157. The value of $\frac{(67.542)^2 - (32.458)^2}{75.458 - 40.374}$ is
 (a) 1 (b) 10
 (c) 100 (d) None of these

158. $\left(\frac{1.49 \times 14.9 - 0.51 \times 5.1}{14.9 - 5.1}\right)$ is equal to (S.S.C., 2004)
 (a) 0.20 (b) 2.00
 (c) 20 (d) 22
159. $\frac{4.2 \times 4.2 - 1.9 \times 1.9}{2.3 \times 6.1} = ?$
 (a) 0.5 (b) 1
 (c) 1.9 (d) 4.2
160. Simplify: $\frac{5.32 \times 56 + 5.32 \times 44}{(7.66)^2 - (2.34)^2}$.
 (a) 7.2 (b) 8.5
 (c) 10 (d) 12
161. $\frac{(0.6)^4 - (0.5)^4}{(0.6)^2 + (0.5)^2}$ is equal to
 (a) 0.1 (b) 0.11
 (c) 1.1 (d) 11
162. $(7.5 \times 7.5 + 37.5 + 2.5 \times 2.5)$ is equal to
 (a) 30 (b) 60
 (c) 80 (d) 100
163. The simplification of $\frac{0.2 \times 0.2 + 0.02 \times 0.02 - 0.4 \times 0.02}{0.36}$ gives
 (a) 0.009 (b) 0.09
 (c) 0.9 (d) 9
164. $(99.75)^2 - 2250.0625 = ?$ (Bank P.O., 2008)
 (a) 6545.625 (b) 7700
 (c) 8875 (d) 9900.625
 (e) None of these
165. $(55.25)^2 - 637.5625 = ?$ (Bank P.O., 2008)
 (a) 25.25 (b) 625
 (c) 1375 (d) 2415
 (e) None of these
166. $\frac{3.25 \times 3.20 - 3.20 \times 3.05}{0.064}$ is equal to (S.S.C., 2010)
 (a) 1 (b) $\frac{1}{2}$
 (c) $\frac{1}{10}$ (d) 10
167. The value of $(.98)^3 + (.02)^3 + 3 \times .98 \times .02 - 1$ is (S.S.C., 2005)
 (a) 0 (b) 1
 (c) 1.09 (d) 1.98
168. The expression $(11.98 \times 11.98 + 11.98 \times x + 0.02 \times 0.02)$ will be a perfect square for x equal to:
 (a) 0.02 (b) 0.2
 (c) 0.04 (d) 0.4
169. The value of $\frac{(2.697 - 0.498)^2 + (2.697 + 0.498)^2}{2.697 \times 2.697 + 0.498 \times 0.498}$ is
 (a) 0.5 (b) 2
 (c) 2.199 (d) 3.195
170. The value of $\frac{(0.137 + 0.098)^2 - (0.137 - 0.098)^2}{0.137 \times 0.098}$ is
 (a) 0.039 (b) 0.235
 (c) 0.25 (d) 4
171. The value of $\left(\frac{0.051 \times 0.051 \times 0.051 + 0.041 \times 0.041 \times 0.041}{0.051 \times 0.051 - 0.051 \times 0.041 + 0.041 \times 0.041}\right)$ is (S.S.C., 2003)
 (a) 0.00092 (b) 0.0092
 (c) 0.092 (d) 0.92
172. The value of $\frac{5.71 \times 5.71 \times 5.71 - 2.79 \times 2.79 \times 2.79}{5.71 \times 5.71 + 5.71 \times 2.79 + 2.79 \times 2.79}$ is (S.S.C., 2005)
 (a) 2.82 (b) 2.92
 (c) 8.5 (d) 8.6
173. The value of $\left(\frac{0.943 \times 0.943 - 0.943 \times 0.057 + 0.057 \times 0.057}{0.943 \times 0.943 \times 0.943 + 0.057 \times 0.057 \times 0.057}\right)$ is (M.B.A., 2005)
 (a) 0.32 (b) 0.886
 (c) 1.1286 (d) None of these
174. The value of $\left(\frac{0.125 + 0.027}{0.5 \times 0.5 + 0.09 - 0.15}\right)$ is (S.S.C., 2010)
 (a) 0.08 (b) 0.2
 (c) 0.8 (d) 1
175. $\left(\frac{10.3 \times 10.3 \times 10.3 + 1}{10.3 \times 10.3 - 10.3 + 1}\right)$ is equal to: (S.S.C., 2004)
 (a) 9.3 (b) 10.3
 (c) 11.3 (d) 12.3
176. $\left[\frac{8(3.75)^3 + 1}{(7.5)^2 - 6.5}\right]$ is equal to: (S.S.C., 2003)
 (a) $\frac{9}{5}$ (b) 2.75
 (c) 4.75 (d) 8.5
177. The value of $\left(\frac{0.1 \times 0.1 \times 0.1 + 0.02 \times 0.02 \times 0.02}{0.2 \times 0.2 \times 0.2 + 0.04 \times 0.04 \times 0.04}\right)$ is (Hotel Management 2003; S.S.C., 2005)
 (a) 0.0125 (b) 0.125
 (c) 0.25 (d) 0.5

178. $\frac{(0.013)^3 + 0.000000343}{(0.013)^2 - 0.000091 + 0.000049} = ?$ (I.I.F.T., 2005)

- (a) 0.002 (b) 0.020
(c) 0.021 (d) 0.023
(e) None of these

179. The value of $\frac{(2.3)^3 - .027}{(2.3)^2 + .69 + .09}$ is (R.R.B., 2005)

- (a) 0 (b) 1.6
(c) 2 (d) 3.4

180. The value of $\frac{(0.06)^2 + (0.47)^2 + (0.079)^2}{(0.006)^2 + (0.047)^2 + (0.0079)^2}$ is (N.M.A.T. 2006; G.B.O. 2007)

- (a) 0.1 (b) 10
(c) 100 (d) 1000

181. $\frac{(4.53 - 3.07)^2}{(3.07 - 2.15)(2.15 - 4.53)} + \frac{(3.07 - 2.15)^2}{(2.15 - 4.53)(4.53 - 3.07)} + \frac{(2.15 - 4.53)^2}{(4.53 - 3.07)(3.07 - 2.15)}$

is simplified to (C.P.O., 2004)

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

182. The fraction equivalent to $\frac{2}{5}\%$ is

[Indian Railways Gr. 'D' Exam, 2014]

- (a) $\frac{1}{40}$ (b) $\frac{1}{125}$
(c) $\frac{1}{250}$ (d) $\frac{1}{500}$

183. The vulgar fraction of $0.\overline{3939}$ is (SSC—CHSL (10+2) Exam, 2015)

- (a) $\frac{15}{33}$ (b) $\frac{11}{39}$
(c) $\frac{17}{39}$ (d) $\frac{13}{33}$

184. Solve $(41.99^2 - 18.04^2) \div ? = 13.11^2 - 138.99$

[IBPS—Bank Spl. Officers (IT) Exam, 2015]

- (a) 48 (b) 12
(c) 72 (d) 84
(e) 128

185. Solve $\frac{3}{5}$ of $\frac{4}{7}$ of $\frac{5}{12}$ of 1015 = ?

[United India Insurance Co. Ltd. (UIICL)

Assistant (Online) Exam, 2015]

- (a) 220 (b) 340
(c) 240 (d) 145
(e) 190

186. Solve $1\frac{1}{8} + 1\frac{6}{7} + 3\frac{3}{5} = ?$

[United India Insurance Co. Ltd. (UIICL)

Assistant (Online) Exam, 2015]

(a) $8\frac{121}{140}$ (b) $6\frac{163}{280}$

(c) $9\frac{197}{280}$ (d) $7\frac{117}{140}$

(e) None of these

187. $2\frac{1.5}{5} + 2\frac{1}{6} - 1\frac{3.5}{15} = \left(\frac{(?)^{1/3}}{4}\right) + 1\frac{7}{30}$

[IDBI Bank Executive Officers Exam, 2015]

- (a) 2 (b) 8
(c) 512 (d) 324
(e) None of these

188. Solve $323.46 + 23.04 - 43.17 - ? = 303$

[NICL—AAO Exam, 2015]

- (a) 0.33 (b) 1.33
(c) 1.23 (d) 0.21
(e) 0.51

189. Solve $1\frac{1}{2} + 2\frac{2}{7} = 3\frac{1}{2} + ?$

[NICL—AAO Exam, 2015]

- (a) $\frac{2}{3}$ (b) $\frac{2}{7}$
(c) $\frac{5}{8}$ (d) $\frac{7}{2}$
(e) $\frac{1}{7}$

190. Solve $48.2 \times 2.5 \times 2.2 + ? = 270$

[NICL—AAO Exam, 2015]

- (a) 6.5 (b) 2.8
(c) 4.9 (d) 3.4
(e) 1.2

191. Solve $4\frac{2}{3} + 3\frac{1}{2} - 1\frac{2}{3} = ?$

[NICL—AAO Exam, 2015]

(a) $2\frac{1}{5}$ (b) $2\frac{5}{3}$

(c) $1\frac{3}{4}$ (d) $1\frac{1}{2}$

(e) $6\frac{1}{2}$

192. Solve: $17292/33 \div 8 = ?$

[NICL—AAO Exam, 2015]

- (a) 23.5 (b) 53.5
(c) 65.5 (d) 33.5
(e) 45.5

193. Solve $1599 \div 39.99 + \frac{4}{5} \times 2449 - 120.05 = ?$

[IBPS—BANK PO/MT (Pre.) Exam, 2015]

- (a) 1680 (b) 1940
(c) 1640 (d) 1880
(e) 1780

194. Solve $1576 \div 45.02 + 23.99 \times \sqrt{255} = ?$

[IBPS—BANK PO/MT (Pre.) Exam, 2015]

- (a) 340 (b) 420
(c) 380 (d) 460
(e) 360

195. Solve $3899 \div 11.99 - 2379 \div 13.97 = ?$

[IBPS—BANK PO/MT (Pre.) Exam, 2015]

- (a) 125 (b) 250
(c) 155 (d) 135
(e) 225

196. Solve $2\frac{2}{9} + 4\frac{1}{18} - 1\frac{1}{2} = ?$

[IBPS—RRB Office Assistant (Online) Exam, 2015]

- (a) $4\frac{5}{9}$ (b) $4\frac{7}{9}$
(c) $5\frac{8}{9}$ (d) $6\frac{1}{2}$
(e) $5\frac{2}{3}$

197. Solve $\frac{294 + 14 \times 5 + 11}{?} = 8^2 \div 5 + 1.7$

[IBPS—RRB Office Assistant (Online) Exam, 2015]

- (a) 8 (b) 6
(c) 12 (d) 5
(e) 10

198. Solve $2.5 \times 4.8 + 7.2 \times 1.5 - 1.2 \times 14 = ?$

[IBPS—RRB Office Assistant (Online) Exam, 2015]

- (a) 1.2 (b) 6.5
(c) 4 (d) 4.8
(e) 6

199. Solve $\sqrt{197} \times 6.99 + 626.96 = ?$

[IBPS—Bank PO/PT Exam, 2015]

- (a) 885 (b) 725
(c) 825 (d) 650
(e) 675

200. Which of the following fractions is the largest?

$\frac{3}{2}, \frac{7}{3}, \frac{5}{4}, \frac{7}{2}$

[ESIC—UDC Exam, 2016]

- (a) $\frac{7}{3}$ (b) $\frac{5}{4}$
(c) $\frac{7}{2}$ (d) $\frac{3}{2}$

201. Solve $\frac{?}{529} = \frac{329}{?}$

[SBI Jr. Associates (Pre.) Exam, 2016]

- (a) 404 (b) 408
(c) 410 (d) 414
(e) 416

202. The numerator of a fraction is decreased by 25% and the denominator is increased by 250%. If the resultant fraction is $\frac{6}{5}$, what is the original fraction?

[SBI Jr. Associates (Pre.) Exam, 2016]

- (a) $\frac{22}{5}$ (b) $\frac{24}{5}$
(c) $\frac{27}{6}$ (d) $\frac{28}{5}$
(e) $\frac{30}{11}$

203. Solve $\frac{21.5}{5} + \frac{21}{6} - \frac{13.5}{15} = \left(\frac{(?)^{\frac{1}{3}}}{4} \right) + \frac{17}{30}$

[IBPS—Bank Sp. Officer (Marketing) Exam, 2016]

- (a) 2 (b) 8
(c) 512 (d) 324
(e) None of these

204. Solve $\left(\frac{18}{4} \right)^2 \times \left(\frac{455}{19} \right) \div \left(\frac{61}{799} \right) = ?$

[IBPS—Bank Sp. Officer (Marketing) Exam, 2016]

- (a) 6320 (b) 6400
(c) 6350 (d) 6430
(e) 6490

205. $\frac{5}{9}$ of a number is equal to twenty five percent of second number. Second number is equal to $\frac{1}{4}$ of third number. The value of third number is 2960. What is 30% of first number?

[DMRC—Customer Relationship Assistant (CRA) Exam, 2016]

- (a) 99.9 (b) 88.8
(c) 77.7 (d) None of these

206. Solve $7\frac{1}{2} - \left[2\frac{1}{4} + \left\{ 1\frac{1}{4} - \frac{1}{2} \left(1\frac{1}{2} - \frac{1}{3} - \frac{1}{6} \right) \right\} \right] = ?$

[UPSSSC—Lower Subordinate (Pre.) Exam, 2016]

- (a) $\frac{2}{9}$ (b) $4\frac{1}{2}$
(c) $9\frac{1}{2}$ (d) $1\frac{77}{228}$

ANSWERS

1. (a)	2. (c)	3. (b)	4. (d)	5. (c)	6. (c)	7. (c)	8. (b)	9. (c)	10. (c)
11. (d)	12. (a)	13. (a)	14. (d)	15. (c)	16. (a)	17. (b)	18. (c)	19. (d)	20. (a)
21. (d)	22. (d)	23. (d)	24. (d)	25. (a)	26. (d)	27. (e)	28. (e)	29. (b)	30. (a)
31. (c)	32. (e)	33. (d)	34. (d)	35. (c)	36. (c)	37. (b)	38. (c)	39. (e)	40. (d)
41. (d)	42. (d)	43. (a)	44. (a)	45. (c)	46. (c)	47. (c)	48. (c)	49. (b)	50. (c)
51. (a)	52. (b)	53. (c)	54. (c)	55. (b)	56. (a)	57. (c)	58. (b)	59. (b)	60. (b)
61. (a)	62. (b)	63. (b)	64. (b)	65. (a)	66. (a)	67. (c)	68. (a)	69. (c)	70. (d)
71. (c)	72. (d)	73. (c)	74. (c)	75. (e)	76. (c)	77. (c)	78. (c)	79. (c)	80. (d)
81. (e)	82. (c)	83. (e)	84. (b)	85. (a)	86. (c)	87. (a)	88. (d)	89. (c)	90. (c)
91. (a)	92. (a)	93. (d)	94. (b)	95. (d)	96. (d)	97. (b)	98. (a)	99. (d)	100. (c)
101. (d)	102. (a)	103. (d)	104. (b)	105. (d)	106. (c)	107. (d)	108. (a)	109. (c)	110. (d)
111. (a)	112. (d)	113. (d)	114. (a)	115. (c)	116. (d)	117. (c)	118. (a)	119. (c)	120. (c)
121. (c)	122. (c)	123. (b)	124. (a)	125. (d)	126. (a)	127. (c)	128. (c)	129. (c)	130. (a)
131. (d)	132. (c)	133. (c)	134. (b)	135. (a)	136. (d)	137. (e)	138. (d)	139. (a)	140. (d)
141. (b)	142. (a)	143. (c)	144. (b)	145. (b)	146. (a)	147. (d)	148. (c)	149. (c)	150. (d)
151. (c)	152. (d)	153. (d)	154. (d)	155. (a)	156. (c)	157. (c)	158. (b)	159. (b)	160. (c)
161. (b)	162. (d)	163. (b)	164. (b)	165. (d)	166. (d)	167. (a)	168. (c)	169. (b)	170. (d)
171. (c)	172. (b)	173. (d)	174. (c)	175. (c)	176. (d)	177. (b)	178. (b)	179. (c)	180. (c)
181. (d)	182. (c)	183. (d)	184. (a)	185. (d)	186. (b)	187. (c)	188. (a)	189. (b)	190. (c)
191. (e)	192. (c)	193. (d)	194. (b)	195. (c)	196. (b)	197. (a)	198. (e)	199. (b)	200. (c)
201. (e)	202. (d)	203. (e)	204. (c)	205. (a)	206. (b)				

SOLUTIONS

1. $\frac{42}{10000} = .0042.$

2. $101\frac{27}{100000} = 101 + \frac{27}{100000} = 101 + .00027 = 101.00027.$

3. $0.36 = \frac{36}{100} = \frac{9}{25}.$

Sum of numerator and denominator = $9 + 25 = 34.$

4. 9 is at thousandths place in 0.06945.

So, place value of 9 = $\frac{9}{1000}.$

5. Required decimal = $\frac{1}{60 \times 60} = \frac{1}{3600} = .00027.$

6. $4A + \frac{7}{B} + 2C + \frac{5}{D} + 6E = 47.2506$

$\Rightarrow 4A + \frac{7}{B} + 2C + \frac{5}{D} + 6E = 40 + 7 + 0.2 + 0.05 + 0.0006$

Comparing the terms on both sides, we get:

$4A = 40, \frac{7}{B} = 7, 2C = 0.2, \frac{5}{D} = 0.05, 6E = 0.0006$

or $A = 10, B = 1, C = 0.1, D = 100, E = 0.0001.$

$\therefore 5A + 3B + 6C + D + 3E$

$= (5 \times 10) + (3 \times 1) + (6 \times 0.1) + 100 + (3 \times 0.0001)$
 $= 50 + 3 + 0.6 + 100 + 0.0003 = 153.6003.$

7. $2111 \overline{)19990} \quad 0.946 \quad \therefore \frac{1999}{2111} = 0.946$

$$\begin{array}{r} 18999 \\ \underline{9910} \\ 8444 \\ \underline{14660} \\ 12666 \\ \underline{11994} \end{array}$$

8. $0.1 = 10 \times 0.01$

9. Converting each of the given fractions into decimal form, we get:

$$\frac{3}{7} = 0.428, \frac{4}{11} = 0.363, \frac{5}{9} = 0.555, \frac{6}{13} = 0.461, \frac{7}{12} = 0.583$$

Clearly, $0.583 > 0.555 > 0.461 > 0.428 > 0.363$.

$$\text{So, } \frac{7}{12} > \frac{5}{9} > \frac{6}{13} > \frac{3}{7} > \frac{4}{11}.$$

10. Converting each of the given fractions into decimal form, we get:

$$\frac{2}{3} = 0.66, \frac{3}{5} = 0.6, \frac{7}{9} = 0.77, \frac{9}{11} = 0.81, \frac{8}{9} = 0.88.$$

Clearly, $0.6 < 0.66 < 0.77 < 0.81 < 0.88$.

$$\text{So, } \frac{3}{5} < \frac{2}{3} < \frac{7}{9} < \frac{9}{11} < \frac{8}{9}.$$

11. Converting each of the given fractions into decimal form, we get:

$$\frac{5}{9} = 0.55, \frac{7}{11} = 0.63, \frac{8}{15} = 0.533, \frac{11}{17} = 0.647.$$

Clearly, $0.647 > 0.63 > 0.55 > 0.533$.

$$\text{So, } \frac{11}{17} > \frac{7}{11} > \frac{5}{9} > \frac{8}{15}.$$

12. Converting each of the given fractions into decimal form, we get:

$$\frac{2}{3} = 0.66, \frac{3}{4} = 0.75, \frac{4}{5} = 0.8, \frac{5}{6} = 0.833.$$

Since $0.833 > 0.8 > 0.75 > 0.66$, so $\frac{5}{6} > \frac{4}{5} > \frac{3}{4} > \frac{2}{3}$.

$$\therefore \text{Required difference} = \left(\frac{5}{6} - \frac{2}{3} \right) = \frac{1}{6}.$$

13. Converting each of the given fractions into decimal form, we get:

$$\frac{15}{16} = 0.9375, \frac{19}{20} = 0.95, \frac{24}{25} = 0.96, \frac{34}{35} = 0.971$$

Clearly, $0.9375 < 0.95 < 0.96 < 0.971$. So, $\frac{15}{16} < \frac{19}{20} < \frac{24}{25} < \frac{34}{35}$.

14. Converting each of the given fractions into decimal form, we get:

$$\frac{9}{31} = 0.29, \frac{3}{17} = 0.176, \frac{6}{23} = 0.26, \frac{4}{11} = 0.363, \frac{7}{25} = 0.28.$$

Clearly, $0.363 > 0.29 > 0.28 > 0.26 > 0.176$.

$$\text{So, } \frac{4}{11} > \frac{9}{31} > \frac{7}{25} > \frac{6}{23} > \frac{3}{17}.$$

15. Converting each of the given fractions into decimal form, we get:

$$\frac{2}{5} = 0.4, \frac{3}{8} = 0.375, \frac{4}{9} = 0.444, \frac{5}{13} = 0.384, \frac{6}{11} = 0.545$$

Clearly, $0.375 < 0.384 < 0.4 < 0.444 < 0.545$.

$$\text{So, } \frac{3}{8} < \frac{5}{13} < \frac{2}{5} < \frac{4}{9} < \frac{6}{11}.$$

16. Clearly, $\frac{11}{14} = 0.785, \frac{16}{19} = 0.842, \frac{19}{21} = 0.904$.

Now, $0.785 < 0.842 < 0.904$. So, $\frac{11}{14} < \frac{16}{19} < \frac{19}{21}$.

17. We have:

$$\frac{13}{16} = 0.8125, \frac{15}{19} = 0.7894, \frac{17}{21} = 0.8095 \text{ and } \frac{7}{8} = 0.875.$$

Since 0.7894 is the smallest, so $\frac{15}{19}$ is the smallest.

18. $\frac{3}{4} = 0.75, \frac{5}{6} = 0.833, \frac{1}{2} = 0.5, \frac{2}{3} = 0.66, \frac{4}{5} = 0.8, \frac{9}{10} = 0.9$.

Clearly, 0.8 lies between 0.75 and 0.833.

$$\therefore \frac{4}{5} \text{ lies between } \frac{3}{4} \text{ and } \frac{5}{6}.$$

19. $\frac{7}{8} = 0.875, \frac{1}{3} = 0.333, \frac{1}{4} = 0.25, \frac{23}{24} = 0.958,$

$$\frac{11}{12} = 0.916, \frac{17}{24} = 0.708.$$

Clearly, 0.708 lies between 0.333 and 0.875.

$$\therefore \frac{17}{24} \text{ lies between } \frac{1}{3} \text{ and } \frac{7}{8}.$$

20. $\frac{4}{5} = 0.8, \frac{7}{13} = 0.53, \frac{1}{2} = 0.5, \frac{2}{3} = 0.66, \frac{3}{4} = 0.75, \frac{5}{7} = 0.714$.

Clearly, 0.5 does not lie between 0.53 and 0.8.

$$\therefore \frac{1}{2} \text{ does not lie between } \frac{4}{5} \text{ and } \frac{7}{13}.$$

21. $\frac{-7}{10} = -0.7, \frac{5}{-8} = -\frac{5}{8} = -0.625, \frac{2}{-3} = -\frac{2}{3} = -0.66$.

Since $-0.7 < -0.66 < -0.625$, so $\frac{-7}{10} < \frac{2}{-3} < \frac{5}{-8}$.

22. $\frac{2}{3} = 0.666, \frac{3}{5} = 0.6, \frac{2}{5} = 0.4, \frac{1}{3} = 0.333, \frac{1}{15} = 0.066, \frac{31}{50} = 0.62$.

Clearly, 0.62 lies between 0.6 and 0.666. So, $\frac{31}{50}$ lies

between $\frac{2}{3}$ and $\frac{3}{5}$.

23. $\frac{1}{5} = 0.2, \frac{8}{35} = 0.228, \frac{8}{37} = 0.216, \frac{8}{39} = 0.205, \frac{2}{11} = 0.181$.

Clearly, $0.181 < 0.2$. So, $\frac{2}{11} < \frac{1}{5}$.

24. $\frac{2}{5} = 0.4, \frac{4}{5} = 0.8, \frac{21}{50} = 0.42, \frac{20001}{50000} = 0.40002,$
 $\frac{200001}{500000} = 0.400002$.

Clearly, 0.400002 is nearest to 0.4.

So, $\frac{200001}{500000}$ is nearest to $\frac{2}{5}$.

25. $\frac{1}{3} = 0.333, \frac{3}{4} = 0.75, \frac{117}{300} = 0.39, \frac{287}{400} = 0.7175,$

$$\frac{95}{300} = 0.316, \frac{301}{400} = 0.7525, \frac{99}{300} = 0.33,$$

$$\frac{97}{300} = 0.323, \frac{299}{500} = 0.598.$$

Clearly, each one of 0.39 and 0.7175 lies between 0.333 and 0.75.

So, $\frac{117}{300}$ and $\frac{287}{400}$ lie between $\frac{1}{3}$ and $\frac{3}{4}$.

26. $\frac{1}{5} = 0.2$ and $\frac{1}{6} = 0.166$.

(a) $\frac{4}{25} = 0.16, \frac{9}{50} = 0.18, \frac{17}{100} = 0.17$

(b) $\frac{4}{25} = 0.16, \frac{17}{100} = 0.17, \frac{167}{1000} = 0.167$

(c) $\frac{4}{25} = 0.16, \frac{9}{50} = 0.18, \frac{167}{1000} = 0.167$

(d) $\frac{9}{50} = 0.18, \frac{17}{100} = 0.17, \frac{167}{1000} = 0.167$

<p>27. $\begin{array}{r} 0.3 \\ 3.0 \\ 3.33 \\ 3.03 \\ \hline + 333.0 \\ \hline 345.96 \end{array}$</p>	<p>28. $\begin{array}{r} 636.66 \\ 366.36 \\ + 363.33 \\ \hline 1366.35 \end{array}$</p>	<p>29. $\begin{array}{r} 24.424 \\ 5.656 \\ 1.131 \\ + 0.089 \\ \hline 31.300 \end{array}$</p>
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<p>30. $\begin{array}{r} 555.05 \\ 55.5 \\ 5.55 \\ 5.0 \\ \hline + 0.55 \\ \hline 621.65 \end{array}$</p>	<p>31. $\begin{array}{r} 4.0 \\ 4.44 \\ 0.4 \\ 44.04 \\ \hline + 444.0 \\ \hline 496.88 \end{array}$</p>	<p>32. $\begin{array}{r} 999.99 \\ 99.99 \\ + 99.9 \\ + 99.9 \\ \hline 1109.97 \end{array}$</p>
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<p>33. $\begin{array}{r} 10.0001 \\ + 9.9999 \\ \hline 20.0000 \end{array}$</p>	<p>34. $\begin{array}{r} 48.95 \\ - 8.9995 \\ \hline 39.9505 \end{array}$</p>
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35. Given expression = $58.621 - (13.829 + 7.302 + 1.214)$
 $= 58.621 - 22.345 = 36.276$.

36. Let $341.42 - 53.74 = x - 62.86$.

Then, $x = (341.42 + 62.86) - 53.74$
 $= 404.28 - 53.74 = 350.54$.

37. Let $534.596 + 61.472 - 496.708 = x + 27.271$

Then, $x = (534.596 + 61.472) - (496.708 + 27.271)$
 $= 596.068 - 523.979 = 72.089$.

38. Given expression = $(11.71 + 1.78) - (0.86 + 9.20)$
 $= 13.49 - 10.06 = 3.43$.

39. Let $726.34 + 888.12 - x = 1001.88$.

Then, $x = (726.34 + 888.12) - 1001.88$
 $= 1614.46 - 1001.88 = 612.58$.

40. Let $832.58 - 242.31 = 779.84 - x$.

Then, $x = (779.84 + 242.31) - 832.58$
 $= 1022.15 - 832.58 = 189.57$.

41. (a) $\frac{9}{4} + 1.75 = 2.25 + 1.75 = 4$.

(b) $\frac{9}{5} + 2.2 = 1.8 + 2.2 = 4$.

(c) $\frac{6}{5} + 2.8 = 1.2 + 2.8 = 4$.

(d) $\frac{3}{2} + 1.5 = 1.5 + 1.5 = 3$.

42. (a) $x^2 + y^2 = (10)^2 + (0.1)^2 = 100 + 0.01 = 100.01$.

(b) $x^2 - y^2 = (10)^2 - (0.1)^2 = 100 - 0.01 = 99.99$.

(c) $x^2 y^2 = (10)^2 \times (0.1)^2 = 100 \times 0.01 = 1$.

(d) $\frac{x^2}{y^2} = \frac{(10)^2}{(0.1)^2} = \frac{100}{0.01} = 10000$.

Clearly, $\frac{x^2}{y^2}$ is the greatest.

43. (a) $(0.09)^2 = 0.0081$

(b) 0.09

(c) $(1 - 0.9)^2 = (0.1)^2 = 0.01$

(d) $1 - (0.9)^2 = 1 - 0.81 = 0.19$

Clearly, $0.0081 < 0.01 < 0.09 < 0.19$.

So, 0.0081 is closest to zero.

44. Required fraction = $\frac{\frac{1}{100} \text{ cm}}{1 \text{ km}} = \frac{\left(\frac{1}{100}\right) \text{ cm}}{(1000 \times 100) \text{ cm}}$
 $= \frac{1}{100 \times 1000 \times 100}$
 $= \frac{1}{10000000} = 0.0000001$.

45. Let $x + 543 + 5.43 = 603.26$.

Then, $x = 603.26 - (543 + 5.43)$
 $= 603.26 - 548.43 = 54.83$.

\therefore Missing digit = 8.

46. $3.14 \times 10^6 = 3.140000 \times 1000000 = 3140000$.

47. $518,000,000 = 5.18 \times 100000000 = 5.18 \times 10^8$.

48. $0.000006723 = \frac{0.000006723 \times 10^6}{10^6}$
 $= \frac{6.723}{10^6} = 6.723 \times 10^{-6}$.

49. $10^k = \frac{0.001125}{1.125} = \frac{1.125}{1125} = \frac{1.125 \times 10^3}{1125 \times 10^3} = \frac{1}{10^3} = 10^{-3}$.

$\therefore k = -3$.

50. Given expression = $\left(\frac{1}{10} \times \frac{1}{100} \times \frac{1}{1000} \times 10^7\right)$
 $= \left(\frac{10^7}{10^6}\right) = 10^{(7-6)} = 10$.

51. $383 \times 38 \times 38 = 553052$.

Number of decimal places = 1.

$\therefore 383 \times 38 \times 3.8 = 55305.2$.

52. $9 \times 7 = 63$.

Sum of decimal places = 5. $\therefore 0.09 \times 0.007 = 0.00063$.

53. Sum of decimal places = 6. $\therefore 0.1 \times 0.01 \times 0.001 = 0.000001$.

54. $3 \times 3 \times 3 \times 3 \times 30 = 2430$.

Sum of decimal places = 6.

$$\therefore 3 \times 0.3 \times 0.03 \times 0.003 \times 30 = 0.00243.$$

55. $144 \times 165 \times 8 = 190080.$

Sum of decimal places = 2.

$$\therefore 14.4 \times 16.5 \times 8 = 1900.80.$$

56. $477 \times 124 \times 86 = 5086728.$

Sum of decimal places = 3.

$$\therefore 47.7 \times 12.4 \times 8.6 = 5086.728.$$

57. $324 \times 115 \times 85 = 3167100.$

Sum of decimal places = 3.

$$\therefore 32.4 \times 11.5 \times 8.5 = 3167.1.$$

58. $4 \times 162 = 648.$

Sum of decimal places = 6.

$$\therefore 0.04 \times 0.0162 = 0.000648 = 6.48 \times 10^{-4}.$$

59. Sum of decimal places = 7.

Since the last digit to the extreme right will be zero

($\because 5 \times 4 = 20$), so there will be 6 significant digits to the right of the decimal point.

60. $\left(.00625 \text{ of } \frac{23}{5} \right) = \left(\frac{625}{100000} \times \frac{23}{5} \right) = \frac{23}{800}.$

61. Given product = $0.3 \times 0.25 \times 0.5 \times 0.125 \times 24$

$$= \left(\frac{3}{10} \times \frac{25}{100} \times \frac{5}{10} \times \frac{125}{1000} \times 24 \right)$$

$$= \frac{9}{80} = \frac{1}{8} \text{ (app.)}$$

62. The digit at the third decimal place is 6, which is greater than 5.

So, 0.0561, rounded to two decimal places, is 0.06.

63. Given expression = $0.25 - 0.025 = 0.225.$

64. Given expression = $197.901 + 99.9 = 297.801.$

65. Given expression = $345 + 20 - 111 = 365 - 111 = 254.$

66. Given expression = $71.808 + 95.76 = 167.568.$

67. Given expression = $293.48 - 141.27 = 152.21.$

68. 1. $36839 \div 17 = 2167.$

Dividend contains 2 places of decimal.

$$\therefore 368.39 \div 17 = 21.67.$$

2. $17050 \div 62 = 275.$ Dividend contains 2 places of decimal.

$$\therefore 170.50 \div 62 = 2.75.$$

3. $87565 \div 83 = 1055.$

Dividend contains 2 places of decimal.

$$\therefore 875.65 \div 83 = 10.55.$$

Since $21.67 > 10.55 > 2.75$, the desired order is 1, 3, 2.

69. $\frac{0.213}{0.00213} = \frac{0.213 \times 100000}{0.00213 \times 100000} = \frac{213 \times 100}{213} = 100.$

70. $\frac{25.025}{0.025} = \frac{25025}{25} = 1001.$

71. $\frac{4.036}{0.04} = \frac{403.6}{4} = 100.9.$

72. $\frac{1}{0.04} = \frac{100}{4} = 25.$

73. Given expression = $448.8 \div 24 = 18.7.$

74. Given expression = $51.4 \times 8 = 411.2.$

75. Given expression = $101 \div 5 = 20.2.$

76. Given expression = $7.92 \div 0.6 = 79.2 \div 6 = 13.2.$

77. $\left(\frac{0.05}{0.25} + \frac{0.25}{0.05} \right)^3 = \left(\frac{5}{25} + \frac{25}{5} \right)^3$

$$= \left(\frac{1}{5} + 5 \right)^3 = \left(\frac{26}{5} \right)^3 = (5.2)^3 = 140.608.$$

78. $\frac{0.0396}{2.51} = \frac{3.96}{251} = \left(\frac{396}{251 \times 100} \right) = \frac{1.577}{100} = 0.01577 \approx 0.016.$

79. Given expression = $3927 + \frac{5526}{12.5} = 3927 + \frac{55260}{125}$

$$= 3927 + 442.08 = 4369.08.$$

80. Given expression = $\frac{116}{8} \times \frac{13.5}{2} = 14.5 \times 6.75 = 97.875.$

81. Given expression = $\frac{0.05 \times 6.25}{2.5} = \frac{0.3125}{2.5} = \frac{3.125}{25} = 0.125.$

82. Given expression = $0.5 \times 0.5 + \frac{0.5}{5} = 0.25 + 0.1 = 0.35.$

83. Given expression = $\frac{400}{0.1} \times 0.2 = 4000 \times 0.2 = 800.$

84. Given expression = $5.5 - [6.5 - \{3.5 \div (6.5 - 3)\}]$

$$= 5.5 - [6.5 - \{3.5 \div 3.5\}]$$

$$= 5.5 - [6.5 - 1] = 5.5 - 5.5 = 0.$$

85. Let $.04 \times x = .000016.$

$$\text{Then, } x = \frac{.000016}{.04} = \frac{.0016}{4} = .0004.$$

86. Let $\frac{.009}{x} = .01.$ Then, $x = \frac{.009}{.01} = \frac{.9}{1} = .9.$

87. $\frac{144}{0.144} = \frac{14.4}{x} \Leftrightarrow \frac{144 \times 1000}{144} = \frac{14.4}{x} \Leftrightarrow x = \frac{14.4}{1000} = 0.0144.$

88. Let $40.04 \div 0.4 = x \times 0.05.$

$$\text{Then, } \frac{40.04}{0.4} = 0.05x \Rightarrow \frac{400.4}{4} = 0.05x$$

$$\Rightarrow 0.05x = 100.1 \Rightarrow x = \frac{100.1}{0.05} = \frac{10010}{5} = 2002.$$

89. Given expression = $\frac{48}{75} \times \frac{84.5}{20} = 0.64 \times 4.225 = 2.704.$

90. Let $(5420 + 3312 + x) \div 600 = 25.93.$

$$\text{Then, } \frac{8732 + x}{600} = 25.93$$

$$\Rightarrow 8732 + x = 25.93 \times 600$$

$$\Rightarrow 8732 + x = 15558 \Rightarrow x = 6826.$$

91. Let $\frac{x^2 + (18)^2}{125} = 3.56.$

$$\text{Then, } x^2 + 324 = 125 \times 3.56 = 445$$

$$\Rightarrow x^2 = 121 \Rightarrow x = 11.$$

92. Let $786 \div 24 \times x = 6.55$.

Then, $\frac{786}{24} \times x = 6.55 \Rightarrow 32.75x = 6.55$

$\Rightarrow x = \frac{6.55}{32.75} = \frac{655}{3275} = \frac{1}{5} = 0.2$.

93. Number of pieces = $\frac{857}{12.6} = \frac{8570}{126} = 68.01 \approx 68$.

94. Quantity of blood donated in 2 years = (350×3) ml
= 1050 ml = 1.05 litres.

\therefore Quantity of blood donated in 6 years

= $\left(\frac{1.05}{2} \times 6\right)$ litres = 3.15 litres.

95. Daily consumption = 1600 ml = 1.6 litres.

Consumption in 4 weeks = $(1.6 \times 4 \times 7)$ litres = 44.8 litres.

96. Length of each piece = $\left(\frac{1}{8}\right)$ m = 0.125 m.

\therefore Required number of pieces

= $\left(\frac{37.5}{0.125}\right) = \left(\frac{375 \times 100}{125}\right) = 300$.

97. Suppose commodity X will cost 40 paise more than Y after z years. Then,

$(4.20 + 0.40z) - (6.30 + 0.15z) = 0.40$

$\Leftrightarrow 0.25z = 0.40 + 2.10 \Leftrightarrow z = \frac{2.50}{0.25} = \frac{250}{25} = 10$.

\therefore X will cost 40 paise more than Y 10 years after 2004 i.e., in 2014.

98. Let the number of 10P coins be x .

Then, number of 5P coins = $(80 - x)$.

$\therefore 0.1x + 0.05(80 - x) = 6.25$

$\Rightarrow 0.1x + 4 - 0.05x = 6.25 \Rightarrow 0.05x = 2.25$

$\Rightarrow x = \frac{2.25}{0.05} = \frac{225}{5} = 45$.

Hence, number of 10P coins = 45. And, number of 5P coins = $(80 - 45) = 35$.

99. $0.121212..... = 0.\overline{12} = \frac{12}{99} = \frac{4}{33}$.

100. $0.125125..... = 0.\overline{125} = \frac{125}{999}$.

101. $0.\overline{47} = \frac{47}{99}$.

102. $0.\overline{36} = \frac{36}{99} = \frac{4}{11}$.

103. $1 \div 0.2 = \frac{1}{0.2} = \frac{10}{2} = 5$; $0.\overline{2} = 0.222.....$; $(0.2)^2 = 0.04$.

$0.04 < 0.2 < 0.22..... < 5$.

Since 0.04 is the least, so $(0.2)^2$ is the least.

104. $1.\overline{27} = 1 + 0.\overline{27} = 1 + \frac{27}{99} = 1 + \frac{3}{11} = \frac{11+3}{11} = \frac{14}{11}$.

105. $0.\overline{423} = \frac{423-4}{990} = \frac{419}{990}$.

106. $0.\overline{2956} = \frac{2956-29}{9900} = \frac{2927}{9900}$.

107. $0.841\overline{81} = \frac{84181-841}{99000} = \frac{83340}{99000} = \frac{463}{550}$.

\therefore Required difference = $(550 - 463) = 87$.

108. $4.1\overline{2} = 4 + 0.1\overline{2} = 4 + \frac{12-1}{90} = 4 + \frac{11}{90}$.

109. $2.\overline{8768} = 2 + 0.8\overline{768} = 2 + \frac{8768-8}{9990} = 2 + \frac{8760}{9990} = 2 + \frac{292}{333}$.

110. $0.\overline{2} + 0.\overline{3} + 0.\overline{32} = \left(\frac{2}{9} + \frac{3}{9} + \frac{32}{99}\right) = \left(\frac{22+33+32}{99}\right) = \frac{87}{99} = 0.\overline{87}$.

111. $0.1428\overline{57} \div 0.2857\overline{14} = \frac{142857}{999999} \div \frac{285714}{999999}$
= $\left(\frac{142857}{999999} \times \frac{999999}{285714}\right) = \frac{1}{2}$.

112. $3.\overline{87} - 2.\overline{59} = (3 + 0.\overline{87}) - (2 + 0.\overline{59}) = \left(3 + \frac{87}{99}\right) - \left(2 + \frac{59}{99}\right)$
= $1 + \left(\frac{87}{99} - \frac{59}{99}\right) = 1 + \frac{28}{99} = 1.\overline{28}$.

113. $3.\overline{36} - 2.\overline{05} + 1.\overline{33} = [(3 + 0.\overline{36}) + (1 + 0.\overline{33})] - (2 + 0.\overline{05})$
= $\left[4 + \left(\frac{36}{99} + \frac{33}{99}\right)\right] - \left[2 + \frac{5}{99}\right]$
= $2 + \left(\frac{36}{99} + \frac{33}{99} - \frac{5}{99}\right) = 2 + \frac{64}{99} = 2.\overline{64}$.

114. $0.0\overline{9} \times 7.\overline{3} = \frac{9}{99} \times 7\frac{3}{9} = \frac{1}{11} \times \frac{66}{9} = \frac{2}{3} = 0.\overline{6}$.

115. $0.34\overline{67} + 0.13\overline{33} = \frac{3467-34}{9900} + \frac{1333-13}{9900} = \frac{3433+1320}{9900}$
= $\frac{4753}{9900} = \frac{4801-48}{9900} = 0.48\overline{01}$.

116. $(8.3\overline{1} + 0.\overline{6} + 0.00\overline{2}) = 8 + \frac{31-3}{90} + \frac{6}{9} + \frac{2}{900}$
= $\frac{7200+280+600+2}{900}$
= $\frac{8082}{900} = 8 + \frac{882}{900} = 8 + \frac{979-97}{900} = 8.97\overline{9}$.

117. $\overline{2.75} + \overline{3.78} = (-2 + 0.75) + (-3 + 0.78)$
= $-5 + (0.75 + 0.78) = -5 + 1.53$
= $-5 + 1 + 0.53 = -4 + 0.53 = \overline{4.53}$.

118. $\frac{547527}{82} = \frac{54.7527}{0.0082} = \left(\frac{547.527}{0.0082} \times \frac{1}{10}\right) = \frac{x}{10}$.

119. $\frac{29.94}{1.45} = \frac{299.4}{14.5} = \left(\frac{2994}{14.5} \times \frac{1}{10}\right) = \frac{172}{10} = 17.2$.

120. $1.6 \times 21.3 = \left(\frac{16}{10} \times \frac{213}{10}\right) = \left(\frac{16 \times 213}{100}\right) = \frac{3408}{100} = 34.08$.

121. $\frac{1}{0.0006198} = \frac{10000}{6.198} = \left(10000 \times \frac{1}{6.198}\right)$
= $(10000 \times 0.16134) = 1613.4$.

122. Given, $\frac{52416}{312} = 168 \Leftrightarrow \frac{52416}{168} = 312$.

Now, $\frac{52416}{0.0168} = \frac{524160}{168} = \left(\frac{52416}{168} \times 10\right) = (312 \times 10) = 3120$.

123. Given, $168 \times 32 = 5376$ or $5376 \div 168 = 32$.

Now, $\frac{5.376}{16.8} = \frac{53.76}{168} = \left(\frac{5376}{168} \times \frac{1}{100}\right) = \frac{32}{100} = 0.32$.

124. Number of decimal places in the given expression = 8.

Number of decimal places in (a) = 8.

Number of decimal places in (b) = 9.

Number of decimal places in (c) = 7.

Clearly, the expression in (a) is the same as the given expression.

125. For the expressions to be equivalent, the difference between the sum of the decimal places in the numerator and that in the denominator must be equal.

This difference is 1 in the given expression and 1 in (d).

So, (d) is the answer.

126. Given expression = $\frac{(96.54 - 89.63)}{(96.54 + 89.63)} \times \frac{(9.654 + 8.963)}{(9.654 - 8.963)}$

$$= \frac{(96.54 - 89.63)}{(965.4 - 896.3)} \times \frac{(9.654 + 8.963)}{(9.654 - 8.963)}$$

$$= \frac{(96.54 - 89.63)}{10(96.54 - 89.63)} \times \frac{(9.654 + 8.963)}{10(9.654 - 8.963)}$$

$$= \frac{1}{10} \times \frac{1}{10} = \frac{1}{100} = 10^{-2}$$

127. $(0.11)^3 + (0.22)^3 + \dots + (0.99)^3 = (0.11)^3 (1^3 + 2^3 + \dots + 9^3)$

$$= 0.001331 \times 2025 = 2.695275 \approx 2.695$$

128. $\frac{1}{4} + \frac{1}{4 \times 5} + \frac{1}{4 \times 5 \times 6} = \frac{1}{4} \left(1 + \frac{1}{5} + \frac{1}{30}\right)$

$$= \frac{1}{4} \left(\frac{30 + 6 + 1}{30}\right) = \frac{1}{4} \times \frac{37}{30}$$

$$= \frac{37}{120} = 0.3083$$

129. Given expression = $\frac{2 \times 4 \times 8 \times 16 + 4 \times 8 \times 16 + 8 \times 16 + 16 + 1}{2 \times 4 \times 8 \times 16}$

$$= \frac{1024 + 512 + 128 + 16 + 1}{1024}$$

$$= \frac{1681}{1024} = 1.6416$$

130. Given expression = $\frac{1}{5 \times 6} + \frac{1}{6 \times 7} + \frac{1}{7 \times 8} + \dots + \frac{1}{24 \times 25}$

$$= \left(\frac{1}{5} - \frac{1}{6}\right) + \left(\frac{1}{6} - \frac{1}{7}\right) + \left(\frac{1}{7} - \frac{1}{8}\right) + \dots + \left(\frac{1}{24} - \frac{1}{25}\right)$$

$$= \left(\frac{1}{5} - \frac{1}{25}\right) = \frac{4}{25} = 0.16$$

131. $\frac{1}{5} = 0.2$; $\left(\frac{1}{5}\right)^2 = (0.2)^2 = 0.04$; $\left(\frac{1}{5}\right)^3 = (0.2)^3 = 0.008$;

$$\left(\frac{1}{5}\right)^4 = (0.2)^4 = 0.0016$$

Clearly, for every power which is a multiple of 4, the expression would have 6 as the last digit.

So, $\left(\frac{1}{5}\right)^{2000}$ would have 6 as the last digit.

132. To get 1 as the answer, the expression must have the same number of decimal places in the numerator and denominator.

The number of decimal places in the given expressions are as under:

(a) Numerator \rightarrow 4; Denominator \rightarrow 3

(b) Numerator \rightarrow 2; Denominator \rightarrow 4

(c) Numerator \rightarrow 6; Denominator \rightarrow 6

(d) Numerator \rightarrow 4; Denominator \rightarrow 2

\therefore The correct answer is (c).

133. Given expression

$$= \left(1 - \frac{1}{4}\right) + \left(\frac{1}{4} - \frac{1}{9}\right) + \left(\frac{1}{9} - \frac{1}{16}\right) + \dots + \left(\frac{1}{81} - \frac{1}{100}\right)$$

$$= 1 - \frac{1}{100} = \frac{99}{100} = 0.99$$

134. $\frac{x}{y} = \frac{0.04}{1.5} = \frac{4}{150} = \frac{2}{75} \Rightarrow \frac{y-x}{y+x} = \frac{1-\frac{x}{y}}{1+\frac{x}{y}} = \frac{1-\frac{2}{75}}{1+\frac{2}{75}} = \frac{73}{77}$

135. Given expression

$$= 35.7 - \left(3 + \frac{1}{10}\right) - \left(2 + \frac{1}{5}\right) = 35.7 - \left(3 + \frac{3}{10}\right) - \left(2 + \frac{2}{5}\right)$$

$$= 35.7 - \frac{33}{10} - \frac{12}{5} = 35.7 - \left(\frac{33}{10} + \frac{12}{5}\right)$$

$$= 35.7 - \frac{57}{10} = 35.7 - 5.7 = 30$$

136. Given expression = $\frac{(0.3333)}{(0.2222)} \times \frac{(0.1667)(0.8333)}{(0.6667)(0.1250)}$

$$= \frac{3333}{2222} \times \frac{\frac{1}{6} \times \frac{5}{6}}{\frac{2}{3} \times \frac{125}{1000}}$$

$$= \left(\frac{3}{2} \times \frac{1}{6} \times \frac{5}{6} \times \frac{3}{2} \times 8\right) = \frac{5}{2} = 2.50$$

137. Given expression = $\frac{35 \times 1.4}{7} = 5 \times 1.4 = 7$

138. Given expression = $\frac{16 \times 32}{8} = 16 \times 4 = 64$

139. Given expression = $\frac{441 \times 16}{21 \times 16 \times 21} = 1$

$$140. \text{ Given expression} = \frac{625 \times 729 \times 289}{81 \times 25 \times 17} = 3825.$$

$$141. \frac{3.6 \times 0.48 \times 2.50}{0.12 \times 0.09 \times 0.5} = \frac{36 \times 48 \times 250}{12 \times 9 \times 5} = 800.$$

$$142. \frac{0.0203 \times 2.92}{0.0073 \times 14.5 \times 0.7} = \frac{203 \times 292}{73 \times 145 \times 7} = \frac{4}{5} = 0.8.$$

$$143. \frac{3.157 \times 4126 \times 3.198}{63.972 \times 2835.121} \approx \frac{3.2 \times 4126 \times 3.2}{64 \times 2835}$$

$$= \frac{32 \times 4126 \times 32}{64 \times 2835} \times \frac{1}{100}$$

$$= \frac{66016}{2835} \times \frac{1}{100} = \frac{23.28}{100} = 0.23 \approx 0.2.$$

$$144. \frac{489.1375 \times 0.0483 \times 1.956}{0.0873 \times 92.581 \times 99.749} \approx \frac{489 \times 0.05 \times 2}{0.09 \times 93 \times 100} = \frac{489}{9 \times 93 \times 10}$$

$$= \frac{163}{279} \times \frac{1}{10} = \frac{0.58}{10} = 0.058 \approx 0.06.$$

$$145. \frac{241.6 \times 0.3814 \times 6.842}{0.4618 \times 38.25 \times 73.65} \approx \frac{240 \times 0.38 \times 6.9}{0.46 \times 38 \times 75}$$

$$= \frac{240 \times 38 \times 69}{46 \times 38 \times 75} \times \frac{1}{10} = \left(\frac{24}{5} \times \frac{1}{10} \right) = \frac{4.8}{10} = 0.48.$$

So, the value is close to 0.4.

$$146. \text{ Given expression} = \frac{(0.2 \times 0.2 + 0.01)}{(0.1 \times 0.1 + 0.02)} = \frac{0.04 + 0.01}{0.01 + 0.02} = \frac{0.05}{0.03} = \frac{5}{3}.$$

$$147. \text{ Given expression} = \frac{8 - 2.8}{1.3} = \frac{5.2}{1.3} = \frac{52}{13} = 4.$$

$$148. \text{ Given expression} = 4.7 \times (13.26 + 9.43 + 77.31)$$

$$= 4.7 \times 100 = 470.$$

$$149. \text{ Given expression} = \frac{0.2(0.2 + 0.02)}{0.044} = \frac{0.2 \times 0.22}{0.044} = \frac{0.044}{0.044} = 1.$$

$$150. \text{ Given expression} = \frac{8.6 \times (5.3 + 4.7)}{4.3 \times (9.7 - 8.7)} = \frac{8.6 \times 10}{4.3 \times 1} = 20.$$

$$151. \text{ Given expression} = \frac{.896 \times (.763 + .237)}{.7 \times (.064 + .936)}$$

$$= \frac{.896 \times 1}{.7 \times 1} = \frac{.896}{.7} = 1.28.$$

$$152. \text{ Given expression} = (1.25)^3 - (0.75)^3 - 3 \times (1.25)^2 \times 0.75$$

$$+ 3 \times 1.25 \times (0.75)^2$$

$$= (1.25 - 0.75)^3 = (0.5)^3 = \left(\frac{1}{2} \right)^3 = \frac{1}{8}.$$

$$[\because (a - b)^3 = a^3 - b^3 - 3a^2b + 3ab^2]$$

$$153. (78.95)^2 - (43.35)^2 = (78.95 + 43.35)(78.95 - 43.35)$$

$$= 122.3 \times 35.6 = 4353.88.$$

$$[\because a^2 - b^2 = (a + b)(a - b)]$$

$$154. \text{ Given expression} = \frac{(a^2 - b^2)}{(a - b)}, \text{ where } a = 75.8, b = 55.8$$

$$= \frac{(a - b)(a + b)}{(a - b)} = a + b$$

$$= 75.8 + 55.8 = 131.6.$$

$$155. \text{ Given expression} = \frac{(a^2 - b^2)}{(a + b)}, \text{ where } a = 3.63, b = 2.37$$

$$= \frac{(a - b)(a + b)}{(a + b)} = (a - b)$$

$$= 3.63 - 2.37 = 1.26.$$

$$156. \text{ Let } \frac{(36.54)^2 - (3.46)^2}{x} = 40. \text{ Then,}$$

$$x = \frac{(36.54)^2 - (3.46)^2}{40} = \frac{(36.54)^2 - (3.46)^2}{36.54 + 3.46}$$

$$= \frac{a^2 - b^2}{a + b} = (a - b) = (36.54 - 3.46) = 33.08.$$

$$157. \text{ Given expression} = \frac{(67.542)^2 - (32.458)^2}{(67.542 + 7.196) - (32.458 + 7.916)}$$

$$= \frac{(67.542)^2 - (32.458)^2}{67.542 - 32.458}$$

$$= (67.542 + 32.458) = 100.$$

$$158. \text{ Given expression} = \left(\frac{1.49 \times 1.49 \times 10 - 0.51 \times 0.51 \times 10}{1.49 \times 10 - 0.51 \times 10} \right)$$

$$= \frac{10[(1.49)^2 - (0.51)^2]}{10(1.49 - 0.51)}$$

$$= (1.49 + 0.51) = 2.$$

$$159. \text{ Given expression} = \frac{(a^2 - b^2)}{(a + b)(a - b)} = \frac{(a^2 - b^2)}{(a^2 - b^2)} = 1.$$

$$160. \text{ Given expression} = \frac{5.32 \times (56 + 44)}{(7.66 + 2.34)(7.66 - 2.34)}$$

$$= \frac{5.32 \times 100}{10 \times 5.32} = 10.$$

$$161. \text{ Given expression} = \frac{[(0.6)^2]^2 - [(0.5)^2]^2}{(0.6)^2 + (0.5)^2}$$

$$= \frac{[(0.6)^2 + (0.5)^2][(0.6)^2 - (0.5)^2]}{(0.6)^2 + (0.5)^2}$$

$$= (0.6)^2 - (0.5)^2 = (0.6 + 0.5)(0.6 - 0.5)$$

$$= (1.1 \times 0.1) = 0.11.$$

$$162. \text{ Given expression} = (7.5 \times 7.5 + 2 \times 7.5 \times 2.5 + 2.5 \times 2.5)$$

$$= (a^2 + 2ab + b^2) = (a + b)^2$$

$$= (7.5 + 2.5)^2 = 10^2 = 100.$$

$$163. 0.2 \times 0.2 + 0.02 \times 0.02 - 0.4 \times 0.02$$

$$= 0.2 \times 0.2 + 0.02 \times 0.02 - 2 \times 0.2 \times 0.02$$

$$= (a^2 + b^2 - 2ab) = (a - b)^2 = (0.2 - 0.02)^2 = (0.18)^2.$$

$$\therefore \text{ Given expression} = \frac{(0.18 \times 0.18)}{0.36} = 0.09.$$

$$164. \text{ Given expression} = (100 - 0.25)^2 - 2250.0625$$

$$= (100)^2 + (0.25)^2 - 2 \times 100 \times 0.25 - 2250.0625$$

$$= 10000.0625 - 50 - 2250.0625 = 10000.0625 - 2300.0625$$

$$= 7700.$$

$$\begin{aligned}
 165. \text{ Given expression} &= (55.25)^2 - (25.25)^2 \\
 &= (55.25 + 25.25)(55.25 - 25.25) \\
 &= 80.5 \times 30 = 2415.
 \end{aligned}$$

$$\begin{aligned}
 166. \text{ Given expression} &= \frac{3.20(3.25 - 3.05)}{0.064} = \frac{3.20 \times 0.2}{0.064} \\
 &= \frac{0.64}{0.064} = \frac{64}{6.4} = 10.
 \end{aligned}$$

$$\begin{aligned}
 167. \text{ Given expression} &= [(.98)^3 + (.02)^3 + 3 \times .98 \times .02 \\
 & \quad (.98 + .02)] - 1 = (.98 + .02)^3 - 1 = (1)^3 - 1 = 0.
 \end{aligned}$$

$$\begin{aligned}
 168. \text{ Given expression} &= (11.98)^2 + (0.02)^2 + 11.98 \times x. \\
 \text{For the given expression to be a perfect square, we must have:} \\
 11.98 \times x &= 2 \times 11.98 \times 0.02 \text{ or } x = 0.04.
 \end{aligned}$$

$$169. \text{ Given expression} = \frac{(a-b)^2 + (a+b)^2}{a^2 + b^2} = \frac{2(a^2 + b^2)}{(a^2 + b^2)} = 2.$$

$$170. \text{ Given expression} = \frac{(a+b)^2 - (a-b)^2}{ab} = \frac{4ab}{ab} = 4.$$

$$\begin{aligned}
 171. \text{ Given expression} &= \frac{(0.051)^3 + (0.041)^3}{(0.051)^2 - (0.051 \times 0.041) + (0.041)^2} \\
 &= \left(\frac{a^3 + b^3}{a^2 - ab + b^2} \right) \\
 &= (a + b) = (0.051 + 0.041) = 0.092.
 \end{aligned}$$

$$\begin{aligned}
 172. \text{ Given expression} &= \frac{(5.71)^3 - (2.79)^3}{(5.71)^2 + 5.71 \times 2.79 + (2.79)^2} \\
 &= \left(\frac{a^3 - b^3}{a^2 + ab + b^2} \right) \\
 &= (a - b) = (5.71 - 2.79) = 2.92.
 \end{aligned}$$

$$\begin{aligned}
 173. \text{ Given expression} &= \frac{(0.943)^2 - (0.943 \times 0.057) + (0.057)^2}{(0.943)^3 + (0.057)^3} \\
 &= \frac{a^2 - ab + b^2}{a^3 + b^3} = \frac{1}{a + b} \\
 &= \frac{1}{0.943 + 0.057} = 1.
 \end{aligned}$$

$$\begin{aligned}
 174. \text{ Given expression} &= \frac{(0.5)^3 + (0.3)^3}{(0.5)^2 + (0.3)^2 - (0.5 \times 0.3)} \\
 &= \left(\frac{a^3 + b^3}{a^2 + b^2 - ab} \right) \\
 &= (a + b) = (0.5 + 0.3) = 0.8.
 \end{aligned}$$

$$\begin{aligned}
 175. \text{ Given expression} &= \frac{(10.3)^3 + (1)^3}{(10.3)^2 - (10.3 \times 1) + (1)^2} = \left(\frac{a^3 + b^3}{a^2 - ab + b^2} \right) \\
 &= (a + b) = (10.3 + 1) = 11.3.
 \end{aligned}$$

$$176. \text{ Given expression} = \frac{(2 \times 3.75)^3 + (1)^3}{(7.5)^2 - (7.5 \times 1) + (1)^2}$$

$$\begin{aligned}
 &= \frac{(7.5)^3 + (1)^3}{(7.5)^2 - (7.5 \times 1) + (1)^2} \\
 &= \left(\frac{a^3 + b^3}{a^2 - ab + b^2} \right) = (a + b) = (7.5 + 1) = 8.5.
 \end{aligned}$$

$$177. \text{ Given expression} = \frac{(0.1)^3 + (0.02)^3}{2^3 [(0.1)^3 + (0.02)^3]} = \frac{1}{8} = 0.125.$$

$$\begin{aligned}
 178. \text{ Given expression} &= \frac{(0.013)^3 + (0.007)^3}{(0.013)^2 - (0.013 \times 0.007) + (0.007)^2} \\
 &= \left(\frac{a^3 + b^3}{a^2 - ab + b^2} \right) \\
 &= a + b = 0.013 + 0.007 = 0.020.
 \end{aligned}$$

$$\begin{aligned}
 179. \text{ Given expression} &= \frac{(2.3)^3 - (0.3)^3}{(2.3)^2 + (2.3 \times 0.3) + (0.3)^2} \\
 &= \left(\frac{a^3 - b^3}{a^2 + ab + b^2} \right) \\
 &= (a - b) = (2.3 - 0.3) = 2.
 \end{aligned}$$

$$\begin{aligned}
 180. \text{ Given expression} &= \frac{a^2 + b^2 + c^2}{\left(\frac{a}{10}\right)^2 + \left(\frac{b}{10}\right)^2 + \left(\frac{c}{10}\right)^2}, \\
 \text{where } a &= 0.06, b = 0.47 \text{ and } c = 0.079. \\
 &= \frac{100(a^2 + b^2 + c^2)}{(a^2 + b^2 + c^2)} = 100.
 \end{aligned}$$

$$\begin{aligned}
 181. \text{ Given expression} &= \frac{(4.53 - 3.07)^3 + (3.07 - 2.15)^3 + (2.15 - 4.53)^3}{(4.53 - 3.07)(3.07 - 2.15)(2.15 - 4.53)} \\
 &= \frac{a^3 + b^3 + c^3}{abc} = \frac{3abc}{abc} = 3. \\
 & \quad [\because \text{if } a + b + c = 0, a^3 + b^3 + c^3 = 3abc]
 \end{aligned}$$

$$182. \frac{2}{5}\% = \frac{2}{5} \times \frac{1}{100} = \frac{1}{250}$$

$$183. \text{ The given expression can be written in this form also} \\
 N = 0.3939 \quad \dots(i)$$

Multiply equation (i) with 100 on both sides.

$$100N = 39.39 \quad \dots(ii)$$

Subtracting equation (i) from (ii) we get

$$\Rightarrow 100N - N = 39.39 - 0.39$$

$$99N = 39$$

$$\Rightarrow N = \frac{39}{99} = \frac{13}{33}$$

$$\begin{aligned}
 184. \{ (41.99)^2 - (18.04)^2 \} \div ? &= (13.11)^2 - 138.99 \\
 \Rightarrow \{ (42)^2 - (18)^2 \} \div ? &= (13)^2 - 139 \quad [\because a^2 - b^2 = (a+b)(a-b)] \\
 \Rightarrow \{ (42+18)(42-18) \} \div ? &= 169 - 139 \\
 \Rightarrow 60 \times 24 \div ? &= 30 \\
 \Rightarrow ? &= \frac{60 \times 24}{30} = 48
 \end{aligned}$$

185. Given $\frac{3}{5}$ of $\frac{4}{7}$ of $\frac{5}{12}$ of 1015

$$\Rightarrow x = \frac{3}{5} \times \frac{4}{7} \times \frac{5}{12} \times 1015 = 145$$

186. Given $1\frac{1}{8} + 1\frac{6}{7} + 3\frac{3}{5}$

$$\frac{9}{8} + \frac{13}{7} + \frac{18}{5} = x$$

By taking the LCM of 8, 7 and 5 is 280.

$$\frac{315 + 520 + 1008}{280} = \frac{1843}{280} = 6\frac{163}{280}$$

187. $2\frac{1.5}{5} + 2\frac{1}{6} - 1\frac{3.5}{15} = \frac{x^{1/3}}{4} + 1\frac{7}{30}$

$$\Rightarrow \frac{11.5}{5} + \frac{13}{6} - \frac{18.5}{15} = \frac{x^{1/3}}{4} + \frac{37}{30}$$

LCM of 5, 6 and 15 is 30.

$$\Rightarrow \frac{69 + 65 - 37}{30} = \frac{x^{1/3}}{4} + \frac{37}{30}$$

$$\Rightarrow \frac{97}{30} = \frac{x^{1/3}}{4} + \frac{37}{30}$$

$$\Rightarrow \frac{x^{1/3}}{4} = \frac{97}{30} - \frac{37}{30}$$

$$\Rightarrow x^{1/3} = \frac{60}{30} \times 4$$

$$\Rightarrow x^{1/3} = 8 \Rightarrow x = (8)^3$$

$$\Rightarrow x = 512$$

Hence, the number is 512.

188. Let the missing number be x .

$$\text{Given } 323.46 + 23.04 - 43.17 - x = 303$$

$$x = 323.46 + 23.04 - 43.17 - 303$$

$$= 0.33$$

189. Let the missing number be x .

$$\text{Given } 1\frac{1}{2} + 2\frac{2}{7} = 3\frac{1}{2} + x$$

$$x = 1\frac{1}{2} + 2\frac{2}{7} - 3\frac{1}{2}$$

$$x = \frac{3}{2} + \frac{16}{7} - \frac{7}{2}$$

$$x = \frac{21 + 32 - 49}{14}$$

$$x = \frac{4}{14} = \frac{2}{7}$$

Hence, the number is $\frac{2}{7}$.

190. Let the missing number be x .

$$\text{Given } 48.2 \times 2.5 \times 2.2 + x = 270$$

$$\Rightarrow x = 270 - 48.2 \times 2.5 \times 2.2$$

$$x = 270 - 265.1 = 4.9$$

Hence, the number is 4.9.

191. Given $4\frac{2}{3} + 3\frac{1}{2} + 1\frac{2}{3}$

$$= \frac{14}{3} + \frac{7}{2} - \frac{5}{3}$$

By taking LCM of 3, 2 and 3 is 6.

$$= \frac{28 + 21 - 10}{6}$$

$$= \frac{39}{6} = \frac{13}{2} = 6\frac{1}{2}$$

192. $\frac{17292}{33} \times \frac{1}{8}$

$$= \frac{17292}{33 \times 8} = 65.5$$

193. Given $= 1599 \div 39.99 + \frac{4}{5} \times 2449 - 120.05$

$$= 1600 \div 40 + \frac{4}{5} \times 2450 - 120$$

$$= 1600 \div 40 + 1960 - 120$$

$$= 40 + 1960 - 120 = 1880$$

194. Given expression

$$= 1576 \div 45.02 + 23.99 \times \sqrt{255}$$

$$= 1575 \div 45 + 24 \times \sqrt{256}$$

$$= 35 + 24 \times 16 = 35 + 384 = 419$$

195. $= 3899 \div 11.99 - 2379 \div 13.97$

$$= 3900 \div 12 - 2380 \div 14$$

$$\approx 325 - 170 \approx 155$$

196. $2\frac{2}{9} + 4\frac{1}{18} - 1\frac{1}{2} = ?$

Let the missing number be x

$$x = \frac{20}{9} + \frac{73}{18} - \frac{3}{2}$$

LCM of 9, 18 and 2 is 18.

$$= \frac{40 + 73 - 27}{18} = \frac{86}{18}$$

$$= \frac{43}{9} = 4\frac{7}{9}$$

197. Let the missing number be x .

$$\frac{294 \div 14 \times 5 + 11}{x} = 8^2 \div 5 + 1.7$$

$$\Rightarrow \frac{\frac{294}{14} \times 5 + 11}{x} = \frac{64}{5} + 1.7$$

$$\Rightarrow \frac{21 \times 5 + 11}{x} = 12.8 + 1.7$$

$$\Rightarrow \frac{105 + 11}{x} = 12.8 + 1.7$$

$$\Rightarrow \frac{116}{x} = 14.5$$

$$\Rightarrow x = \frac{116}{14.5} = \frac{116 \times 10}{145} = 8$$

Hence, the number is 8.

198. Let the missing number be x

$$x = 2.5 \times 4.8 + 7.2 \times 1.5 - 1.2 \times 14$$

$$= (12 + 10.8 - 16.8) = 6$$

199. Given $\sqrt{197} \times 6.99 + 626.96$

$$= \sqrt{196} \times 7 + 627$$

$$= 14 \times 7 + 627 = 98 + 627 = 725$$

200. Each fraction is equivalent to decimal

$$\frac{3}{2} = 1.5; \frac{7}{3} = 2.3$$

$$\frac{5}{4} = 1.25; \frac{7}{2} = 3.5$$

Hence, $\frac{7}{2}$ is largest fraction.

201. Let the missing number be x ; $\frac{x}{529} = \frac{329}{x}$

$$x \times x = 529 \times 329$$

$$x = \sqrt{174041} = 417.18 \approx 416$$

Hence, the number is 416.

202. Let original fraction be $\frac{a}{b}$.

Now, according to the question

$$\frac{a - a \times \frac{25}{100}}{b + b \times \frac{250}{100}} = \frac{6}{5}$$

$$\frac{0.75a}{3.50b} = \frac{6}{5}$$

$$\Rightarrow \frac{a}{b} = \frac{6}{5} \times \frac{3.50}{0.75} = \frac{6 \times 350 \times 100}{5 \times 75 \times 100} = \frac{28}{5}$$

203. Let the missing number be x .

$$\frac{21.5}{5} + \frac{21}{6} - \frac{13.5}{15} = \frac{(x)^{\frac{1}{3}}}{4} + \frac{17}{30}$$

$$\frac{21.5}{5} + \frac{21}{6} - \frac{13.5}{15} - \frac{17}{30} = \frac{(x)^{\frac{1}{3}}}{4}$$

LCM of 5, 6, 15 and 30 is 30.

$$\frac{129 + 105 - 27 - 17}{30} = \frac{\sqrt[3]{x}}{4}$$

$$\sqrt[3]{x} = \frac{190 \times 4}{30} = 25.33 \approx 25$$

$$x = 25^3$$

$$x = 15625$$

Hence, the numbers 15625.

$$\begin{aligned} 204. & \left(\frac{18}{4}\right)^2 \times \left(\frac{455}{19}\right) \div \left(\frac{61}{799}\right) \\ &= \frac{324}{16} \times \frac{455}{19} \times \frac{799}{61} = 6350 \end{aligned}$$

205. Let the third number be 2960

$$\therefore \text{Second number} = \frac{1}{4} \text{ of third number} = \frac{1}{4} \times 2960 = 740$$

$$\frac{5}{9} \text{ of first number} = 25\% \text{ of second number}$$

$$\frac{5}{9} \text{ first number} = \frac{25 \times 740}{100} = 185$$

$$\Rightarrow \text{First number} = \frac{185 \times 9}{5} = 333$$

$$\therefore 30\% \text{ of } 333 = \frac{30}{100} \times 333 = 999$$

$$\begin{aligned} 206. & 7\frac{1}{2} - \left[2\frac{1}{4} \div \left\{ 1\frac{1}{4} - \frac{1}{2} \left(1\frac{1}{2} - \frac{1}{3} - \frac{1}{6} \right) \right\} \right] \\ &= \frac{15}{2} - \left[\frac{9}{4} \div \left\{ \frac{5}{4} - \frac{1}{2} \left(\frac{3}{2} - \frac{1}{3} - \frac{1}{6} \right) \right\} \right] \\ &= \frac{15}{2} \left[\frac{9}{4} \div \left\{ \frac{5}{4} - \frac{1}{2} \left(\frac{9-2-1}{6} \right) \right\} \right] \\ &= \frac{15}{2} \left[\frac{9}{4} \div \left(\frac{5}{4} - \frac{1}{2} \right) \right] = \frac{15}{2} \left[\frac{9}{4} \div \left(\frac{5-2}{4} \right) \right] \\ &= \frac{15}{2} - \left[\frac{9}{4} \div \frac{3}{4} \right] = \frac{15}{2} - \left[\frac{9}{4} \times \frac{4}{3} \right] \\ &= \frac{15}{2} - 3 = \frac{15-6}{2} = \frac{9}{2} = 4\frac{1}{2} \end{aligned}$$