

NTS GAT General Past Paper Questions

Quantitative – Exam No. 10

Fractions

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Formula:

Least Common Multiple (LCM):

1. Let we have to find the LCM of 4 and 6:

$$\text{Multiples of 4} = 4, 8, 12, 16$$

$$\text{Multiples of 6} = 6, 12, 18$$

Hence, 12 is the LCM of 4 and 6.

2. Let we have to find the LCM of 3, 6 and 8:

$$\text{Multiples of 3} = 3, 6, 9, 12, 15, 18, 21, 24, 27$$

$$\text{Multiples of 6} = 6, 12, 18, 24, 30$$

$$\text{Multiples of 8} = 8, 16, 24, 32$$

Exercise:

1. Simplify:

$$\frac{11}{9} - \frac{2}{3} - \frac{3}{9} + 9$$

Solution:

$$\begin{aligned} &= \frac{11}{9} - \frac{2}{3} - \frac{3}{9} + \frac{9}{1} \\ &= \frac{\left(\frac{11}{9} \times 9\right) - \left(\frac{2}{3} \times 9\right) - \left(\frac{3}{9} \times 9\right) + \left(\frac{9}{1} \times 9\right)}{9} \\ &= \frac{(11 \times 1) - (2 \times 3) - (3 \times 1) + (9 \times 9)}{9} \\ &= \frac{11 - 6 - 3 + 81}{9} \end{aligned}$$

$$= \frac{92 - 9}{9} = \frac{83}{9}$$

2. Simplify:

$$-\frac{9}{12} + 1 - \frac{6}{4} + \frac{1}{6}$$

Solution:

$$\begin{aligned} &= -\frac{9}{12} + \frac{1}{1} - \frac{6}{4} + \frac{1}{6} \\ &= \frac{\left(-\frac{9}{12} \times 12\right) + \left(\frac{1}{1} \times 12\right) - \left(\frac{6}{4} \times 12\right) + \left(\frac{1}{6} \times 12\right)}{12} \\ &= \frac{(-9 \times 1) + (1 \times 12) - (6 \times 3) + (1 \times 2)}{12} \\ &= \frac{-9 + 12 - 18 + 2}{12} \\ &= \frac{14 - 27}{12} = \frac{-13}{12} \end{aligned}$$

3. Simplify: (PP)

$$3\frac{1}{2} + 4\frac{1}{3} - 4\frac{1}{4}$$

Solution:

$$\begin{aligned} &= \frac{((2 \times 3) + 1)}{2} + \frac{((3 \times 4) + 1)}{3} - \frac{((4 \times 4) + 1)}{4} \\ &= \frac{(6 + 1)}{2} + \frac{(12 + 1)}{3} - \frac{(16 + 1)}{4} \\ &= \frac{7}{2} + \frac{13}{3} - \frac{17}{4} \\ &= \frac{\left(\frac{7}{2} \times 12\right) + \left(\frac{13}{3} \times 12\right) - \left(\frac{17}{4} \times 12\right)}{12} \\ &= \frac{(7 \times 6) + (13 \times 4) - (17 \times 3)}{12} \end{aligned}$$

$$= \frac{42 + 52 - 51}{12}$$

$$= \frac{94 - 51}{12} = \frac{43}{12}$$

4. Simplify:

$$-2\frac{1}{3} + 6\frac{1}{5} + 8\frac{1}{10}$$

Solution:

$$= -\frac{(3 \times 2) + 1}{3} + \frac{(5 \times 6) + 1}{5} + \frac{(10 \times 8) + 1}{10}$$

$$= -\frac{(6 + 1)}{3} + \frac{(30 + 1)}{5} + \frac{(80 + 1)}{10}$$

$$= -\frac{7}{3} + \frac{31}{5} + \frac{81}{10}$$

$$= \frac{\left(-\frac{7}{3} \times 30\right) + \left(\frac{31}{5} \times 30\right) + \left(\frac{81}{10} \times 30\right)}{30}$$

$$= \frac{(-7 \times 10) + (31 \times 6) + (81 \times 3)}{30}$$

$$= \frac{-70 + 186 + 243}{30}$$

$$= \frac{429 - 70}{30} = \frac{359}{30}$$

5. Simplify:

$$\frac{3/2}{9/7} - \frac{2}{9}$$

Solution:

$$= \frac{3 \times 7}{9 \times 2} - \frac{2}{9}$$

$$= \frac{21}{18} - \frac{2}{9}$$

$$\begin{aligned}
 &= \frac{\left(\frac{21}{18} \times 18\right) - \left(\frac{2}{9} \times 18\right)}{18} \\
 &= \frac{(21 \times 1) - (2 \times 2)}{18} \\
 &= \frac{21 - 4}{18} = \frac{17}{18}
 \end{aligned}$$

6. Simplify: (PP)

$$\frac{1/2}{1/2} + \frac{1}{2}$$

Solution:

$$\begin{aligned}
 &= \frac{1}{1} + \frac{1}{2} \\
 &= \frac{\left(\frac{1}{1} \times 2\right) + \left(\frac{1}{2} \times 2\right)}{2} \\
 &= \frac{(1 \times 2) + (1 \times 1)}{2} \\
 &= \frac{2 + 1}{2} = \frac{3}{2}
 \end{aligned}$$

7. Simplify: (PP)

$$\frac{4\frac{1}{2}}{10\frac{1}{8}}$$

Solution:

$$\begin{aligned}
 &= \frac{\frac{(4 \times 2) + 1}{2}}{\frac{(10 \times 8) + 1}{8}} \\
 &= \frac{\frac{8 + 1}{2}}{\frac{80 + 1}{8}}
 \end{aligned}$$

$$\begin{aligned}
 &= \frac{9/2}{81/8} \\
 &= \frac{9 \times 8}{81 \times 2} \\
 &= \frac{72}{162} = \frac{4}{9}
 \end{aligned}$$

8. Which of the following fractions is between 1 and 2? (PP)

- (A) 7/9
- (B) 7/3
- (C) 9/4
- (D) 10/7
- (E) 12/5

Solution:

We will solve each option one by one as follows:

Option (A)	$7/9 = 0.7$	Not possible
Option (B)	$7/3 = 2.3$	Not possible
Option (C)	$9/4 = 2.2$	Not possible
Option (D)	$10/7 = 1.4$	It is answer
Option (E)	$12/5 = 2.4$	Not possible

9. Simplify: (PP)

$$\left[\frac{1}{3} - \frac{1}{2} \right] - 1$$

Solution:

$$\begin{aligned}
 &= \frac{1}{3} - \frac{1}{2} - \frac{1}{1} \\
 &= \frac{2 - 3 - 6}{6} = \frac{-7}{6}
 \end{aligned}$$

10.Simplify: (PP)

$$\frac{1\frac{3}{4} - 1\frac{2}{3}}{\frac{1}{3} - \frac{1}{2}}$$

Solution:

$$= \frac{1\frac{3}{4} - 1\frac{2}{3}}{\frac{1}{3} - \frac{1}{2}} = \frac{\frac{7}{4} - \frac{5}{3}}{\frac{1}{3} - \frac{1}{2}} = \frac{\frac{21 - 20}{12}}{\frac{2 - 3}{6}} = \frac{\frac{1}{12}}{\frac{-1}{6}} = \frac{1 \times 6}{-1 \times 12} = -\frac{1}{2}$$

11.Simplify: (PP)

$$\frac{4 + \frac{1}{2}}{\frac{18}{4}}$$

Solution:

$$= \frac{4 + \frac{1}{2}}{\frac{18}{4}} = \frac{\frac{4}{1} + \frac{1}{2}}{\frac{18}{4}} = \frac{\frac{8 + 1}{2}}{\frac{18}{4}} = \frac{\frac{9}{2}}{\frac{18}{4}} = \frac{9 \times 4}{2 \times 18} = \frac{36}{36} = 1$$

12.Simplify: (PP)

$$\frac{2\frac{1}{7} - 2\frac{1}{2}}{2\frac{1}{4} + 1\frac{1}{7}}$$

Solution:

$$= \frac{2\frac{1}{7} - 2\frac{1}{2}}{2\frac{1}{4} + 1\frac{1}{7}} = \frac{\frac{15}{7} - \frac{5}{2}}{\frac{9}{4} + \frac{8}{7}} = \frac{\frac{30 - 35}{14}}{\frac{63 + 32}{28}} = \frac{\frac{-5}{14}}{\frac{95}{28}} = \frac{-5 \times 28}{95 \times 14} = \frac{-2}{19}$$

13.For which of the following values of “n” is $30/n$ NOT an integer? (PP)

- (A) 2
- (B) 3
- (C) 4

(D) 5

(E) 6

Solution:

We will solve each option one by one as follows:

Option (A)	$30/2 = 15$	Integer
Option (B)	$30/3 = 10$	Integer
Option (C)	$30/4 = 7.5$	Not an integer
Option (D)	$30/5 = 6$	Integer
Option (E)	$30/6 = 5$	Integer

Hence, option C is correct.

14. Simplify:

$$\frac{4}{5} + \frac{2}{8} - \frac{1}{8}$$

(A) $7/8$

(B) $5/8$

(C) 0.925

(D) 0.8

Solution:

$$= \frac{4}{5} + \frac{2}{8} - \frac{1}{8} = \frac{32 + 10 - 5}{40} = \frac{37}{40} = 0.925$$

$$\begin{array}{r} 0.925 \\ 40 \overline{) 37.000} \\ \underline{00} \downarrow \\ 370 \\ \underline{360} \downarrow \\ 100 \\ \underline{80} \downarrow \\ 200 \\ \underline{200} \\ 0 \end{array}$$