

NTS GAT General Past Papers Questions

Quantitative – Exam No. 20

Simple Mathematical Operations

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Formula:

The following is the order of priority of solving:

Bracket(B) > Exponent(E) > Division(D) > Multiplication(M)

> Addition(A) > Subtraction(S)

B > E > D > M > A > S

Exercise:

1. Simplify:

$$4 + 8 + 2 \div 6 \times 2$$

Solution:

$$= 4 + 8 + \frac{2}{6} \times 2$$

$$= 4 + 8 + \frac{1}{3} \times 2$$

$$= 4 + 8 + \frac{2}{3}$$

$$= \frac{4}{1} + \frac{8}{1} + \frac{2}{3}$$

$$= \frac{12 + 24 + 2}{3}$$

$$= \frac{38}{3}$$

2. Simplify: (PP)

$$\left(\frac{2-1}{2-1}\right)\left(\frac{2-1}{3-1}\right)\left(\frac{2-1}{4-1}\right)$$

Solution:

$$\begin{aligned} &= \left(\frac{2-1}{2-1}\right) \left(\frac{2-1}{3-1}\right) \left(\frac{2-1}{4-1}\right) \\ &= \left(\frac{1}{1}\right) \left(\frac{1}{2}\right) \left(\frac{1}{3}\right) \\ &= \frac{1 \times 1 \times 1}{1 \times 2 \times 3} \\ &= \frac{1}{6} \end{aligned}$$

3. Simplify: (PP)

$$-2 - 3[(-3)^2 + 1(-1)^2]$$

Solution:

$$\begin{aligned} &= -2 - 3[(-3)^2 + 1(-1)^2] \\ &= -2 - 3[9 + 1(1)] \\ &= -2 - 3[9 + 1] \\ &= -2 - 3[10] \\ &= -2 - 30 \\ &= -32 \end{aligned}$$

4. Simplify: (PP)

$$3 - (3 - 2(3 - 8 \div 2))$$

Solution:

$$\begin{aligned} &= 3 - \left(3 - 2\left(3 - \frac{8}{2}\right)\right) \\ &= 3 - (3 - 2(3 - 4)) \\ &= 3 - (3 - 2(-1)) \\ &= 3 - (3 + 2) \\ &= 3 - (5) \\ &= 3 - 5 \end{aligned}$$

$$= -2$$

5. Simplify: (PP)

$$3 - (2^3 - 2[3 - 16 \div 2])$$

Solution:

$$= 3 - (2^3 - 2[3 - 16 \div 2])$$

$$= 3 - \left(2^3 - 2 \left[3 - \frac{16}{2} \right] \right)$$

$$= 3 - (2^3 - 2[3 - 8])$$

$$= 3 - (2^3 - 2[-5])$$

$$= 3 - (2^3 + 10)$$

$$= 3 - (8 + 10)$$

$$= 3 - 18$$

$$= -15$$

6. Simplify: (PP)

$$(-3)(-3)(-3)$$

Solution:

$$= (+9)(-3)$$

$$= -27$$

7. Simplify: (PP)

$$-[3 + 3(-5 - 1)]$$

Solution:

$$= -[3 + 3(-6)]$$

$$= -[3 - 18]$$

$$= -[-15]$$

$$= [+15]$$

$$= 15$$

8. Simplify: (PP)

$$2 - (-(-(-5 + 3)))$$

Solution:

$$\begin{aligned} &= 2 - (-(-(-2))) \\ &= 2 - (-(+2)) \\ &= 2 - (-2) \\ &= 2 + 2 \\ &= 4 \end{aligned}$$

9. Simplify: (PP)

$$-4(-1 + 2(-1 + 2))$$

Solution:

$$\begin{aligned} &= -4(-1 + 2(-1 + 2)) \\ &= -4(-1 + 2(+1)) \\ &= -4(-1 + 2) \\ &= -4(+1) \\ &= -4 \end{aligned}$$

10. Simplify:

$$\sqrt{289}(\sqrt{256} + \sqrt{676})$$

Solution:

$$\begin{aligned} &= \sqrt{289}(\sqrt{256} + \sqrt{676}) \\ &= 17(16 + 26) \\ &= 17(42) = 714 \end{aligned}$$

11. Simplify: (PP)

$$\sqrt{625} \times \sqrt{144} + \sqrt{1024}$$

Solution:

$$\begin{aligned}
 &= \sqrt{625} \times \sqrt{144} + \sqrt{1024} \\
 &= 25 \times 12 + 32 \\
 &= 300 + 32 = 332
 \end{aligned}$$

12.Simplify: (PP)

$$\frac{6^4 - 6^3}{5}$$

Solution:

$$\begin{aligned}
 &= \frac{6^4 - 6^3}{5} \\
 &= \frac{6^{3+1} - 6^3}{5} \\
 &= \frac{6^3 \times 6 - 6^3}{5} \\
 &= \frac{6^3(6 - 1)}{5} \\
 &= \frac{6^3(5)}{5} \\
 &= 6^3 \\
 &= 6 \times 6 \times 6 \\
 &= 216
 \end{aligned}$$

13.Simplify:

$$\frac{5^8 - 5^6}{5^5}$$

Solution:

$$\begin{aligned}
 &= \frac{5^8 - 5^6}{5^5} \\
 &= \frac{5^{5+3} - 5^{5+1}}{5^5}
 \end{aligned}$$

$$\begin{aligned}
 &= \frac{5^5 \times 5^3 - 5^5 \times 5}{5^5} \\
 &= \frac{5^5(5^3 - 5)}{5^5} \\
 &= 5^3 - 5 \\
 &= 5 \times 5 \times 5 - 5 \\
 &= 125 - 5 \\
 &= 120
 \end{aligned}$$

14. What is the additive inverse of -5? (PP)

Solution:

To find the additive inverse of any number, just change its sign:

$$\text{Additive inverse} = +5$$

15. Find the multiplicative inverse of -5? (PP)

Solution:

To find the multiplicative inverse of any number, just take its reciprocal:

$$\text{Multiplicative inverse} = \frac{1}{-5} = -\frac{1}{5} = \frac{-1}{5}$$

16. The square root of 636 is between which set of integers? (PP)

- (A) 24 and 25
- (B) 25 and 26
- (C) 26 and 27
- (D) 27 and 28
- (E) 28 and 29

Solution:

We know that:

$$(24)^2 = 576 \quad (25)^2 = 625 \quad (26)^2 = 676$$

Hence, option B is correct.