

IEM KOLKATA
SIMPLIFICATION

Instructor: Akash Bhattacharya

Q1) Find the missing part (?) in the given questions below:

(i) $56 - 742/53/2 = ?^2$

- (a) 2 (b) 4 (c) 6 (d) 7

(ii) $92 \times \sqrt[4]{1296} - 254 = (? \times 7 + 151)$

- (a) 14 (b) 7 (c) 12 (d) 21

(iii) $9 \times 9 \times 9 + 6 \times 6 \times 6 = (1.5)^? \times 35 \times 8$

- (a) 6 (b) 9 (c) 3 (d) 1.5

Q2) What is the value of $\left[(3 \times 3 \times 3 \times 3 \times 3 \times 3)^6 \div (3 \times 3 \times 3 \times 3)^7 \times 3^4 \right]$

Q3) What will be the value of $\frac{\sqrt{0.0016} \times \sqrt[3]{8000000}}{\sqrt[3]{0.000512} \times \sqrt[3]{0.064}}$

Q4) What is the value of $\left(13.8 \times 1.9 \div 5.7 + 11.2 \text{ of } \frac{1}{16} - \frac{1}{20} \right) ?$

Q5) On simplification of the following, the result will be ?

$$\left(1 - \frac{1}{2} \right) \left(1 - \frac{1}{3} \right) \left(1 - \frac{1}{4} \right) \dots \dots \left(1 - \frac{1}{100} \right)$$

Q6) $4^{61} + 4^{62} + 4^{63} + 4^{64} + 4^{65}$ is divisible by?

- (a) 3 (b) 5 (c) 11 (d) 17

Q7) If $a * b = 2a + 3b$, then the value of $2 * 3 + 3 * 4$ is?

Q8) If $1^2 + 2^2 + 3^2 + \dots + 10^2 = 385$, then $3^2 + 6^2 + 9^2 + \dots + 30^2$ is equal to?

Q9) Simplify

$$\frac{0.72 \times 0.72 \times 0.72 - 0.39 \times 0.39 \times 0.39}{0.72 \times 0.72 + 0.72 \times 0.39 + 0.39 \times 0.39}$$

Q10) For what value of *, the statement $\frac{*}{15} \times \frac{*}{135} = 1$ is true?

Q11) The value of

$$\frac{1}{1 + \sqrt{2}} + \frac{1}{\sqrt{2} + \sqrt{3}} + \frac{1}{\sqrt{3} + \sqrt{4}} + \dots + \frac{1}{\sqrt{15} + \sqrt{16}}$$