

### Symbols and Notations-Exercise Questions updated on Dec 2024

**Direction:** Study the following sequence carefully and answer the questions given below:

1. If '-' stands for 'x', 'x' stands for '+', '+' stands for '÷' and '÷' stands for '-', then what is the value of  $9 \div 18 \times 15 + 3 - 6 \times 12$  ?

(a)24 (b)30 (c)33 (d)42 (e)58

2. If  $a \$ b = a^2 b^2 - ab$ , then  $3 \$ 8 =$

(a)600 (b)552 (c)576 (d)625 (e)676

3. If  $p \emptyset q = p^2 + q^2 - p - q$  and  $p \hat{=} q = pq - p - q$ , then  $(6 \emptyset 5) \hat{=} 5 =$

(a)200 (b)175 (c)195 (d)179 (e)225

4. If  $4 \odot 5 = 189$  and  $10 \odot 8 = 1512$ , then  $6 \odot 9 =$

(a)945 (b)1148 (c)983 (d)764 (e)932

5. If ' $\hat{<}$ ' means 'is less than', ' $\$$ ' means 'is greater than' and ' $\text{£}$ ' means 'is equal to' and given that  $a \hat{<} b$ ,  $c \text{£} d$  and  $c \$ b$ , then which of the following is true ?

(a)  $d \hat{<} a$  (b)  $b \$ d$  (c)  $a \text{£} c$  (d)  $a \hat{<} b \hat{<} c$  (e)  $a \hat{<} c$

6. If 'x' means 'added to', '÷' means 'multiplied by', '+' means 'subtracted from' and '-' means 'divided by', then simplify  $24 + 36 - 12 \times 8 \div 4 = ?$

(a)36 (b)53 (c)5 (d)20 (e)None of these

7. If A means '-', B means '÷', C means '+', and D means 'x', then  $15 B 3 C 24 A 12 D 2 = ?$

(a)2 (b)5/9 (c)  $-23^4/9$  (d)34 (e)5

8. If 'W' means '÷', 'X' means '+', 'Y' means '-' and 'Z' means 'x' then  $28 Z 3 Y 4 \times 12 W 6 = ?$

(a)27 (b)82 (c)39 (d)53 (e)11

9. If '+' means '÷', '÷' means 'x', 'x' means '-' and '-' means '+', then  $10 + 2 \div 5 - 3 \div 4 + 2 - 1 = ?$

(a)32 (b)50 (c)45 (d)120 (e)150

10. If  $5 @ 6 = 61$  and  $8 @ 10 = 164$ , then  $7 @ 9 = ?$

(a)125 (b)63 (c)130 (d)32 (e)95

### Answer & Explanations

1. Ans (c)33. The given expression  $9 \div 18 \times 15 + 3 - 6 \times 12$ . By converting the symbols according to the given definitions, we get  $9 - 18 + 15 \div 3 \times 6 + 12$  solving this by BODMAS rule, we get the value as 33.

2. Ans (b)552. Given  $a \$ b = a^2 b^2 - ab - ab \rightarrow 3 \$ 8 = 3^2 \times 8^2 - 3 \times 8 - 9 \times 64 - 24 = 576 - 24 = 552$

3. Ans (c)195.  $6 \emptyset 5 = 6^2 + 5^2 - 6 - 5 = 36 + 25 - 6 - 5 = 50$  ( $6 \emptyset 5 \hat{=} 5 = 50 \hat{=} 5 = 50 \times 5 - 50 - 5 = 195$ )

4. Ans (a)945.  $4^3 + 5^3 = 64 + 125 = 189 \Rightarrow 4 \odot 5$ ,  $10^3 + 8^3 = 1000 + 512 = 1512 \Rightarrow 10 \odot 8$

Similarly,  $6 \odot 9 = 6^3 + 9^3 = 216 + 729 = 945$

5. Ans (a)  $a \hat{=} b \hat{=} c$ .  $a \hat{=} b$  means  $a < b$ ,  $c \$ d$  means  $c > b$ ,  $b < c$ ,  $c \# d$  means  $c = d$  therefore,  $a < b < c = d$ . So  $a \hat{=} b \hat{=} c$  is true  $\Rightarrow a < b < c \rightarrow$  is true

6. Ans (b)53.  $24 - 36 \div 12 + 8 \times 4 = 24 - 3 + 32 = 53$ .

7. Ans (e)5.  $15 \div 3 + 24 - 12 \times 2$ ,  $5 + 24 - 24 = 5$

8. Ans (b)82.  $28 \times 3 - 4 + 12 \div 6$ ,  $84 - 4 + 2$  or  $84 + 2 - 4 = 86 - 4 = 82$

9. Ans (a)32.  $10 \div 2 \times 5 + 3 \times 4 \div 2 + 1$ ,  $5 \times 5 + 3 \times 4 \div 2 + 1$ ,  $5 \times 5 + 3 \times 2 + 1$ ,  $25 + 6 + 1 = 32$

10. Ans (c)130.  $5 \times 5 + 6 \times 6 = 25 + 36 = 61$ ,  $8 \times 8 + 10 \times 10 = 64 + 100 = 164$  so,  $7 \times 7 + 9 \times 9 = 49 + 81 = 130$