

Ch 10 MATHEMATICAL OPERATIONS

ANSWERS AND EXPLANATIONS

EXERCISE 1

1. (e) $? = 540 \div 36 \times 12 + 75 - 55$

or $? = 15 \times 12 + 75 - 55$

or $? = 180 + 75 - 55 = 200$

2. (c) $? = 360 \div 24 + 56 \times 5 - 48$

or $? = 15 + 280 - 48 = 247$

3. (a) \times means +

+ means \div

\div means -

- means \times

$5 - 7 \times 9 + 3 \div 2 = ?$

or $? = 5 \times 7 + 9 \div 3 - 2$

or $? = 5 \times 7 + 3 - 2$

or $? = 35 + 3 - 2 = 36$

4. (d)

| | |
|---------------------------|------------------------|
| $- \Rightarrow +$ | $\times \Rightarrow -$ |
| $\div \Rightarrow \times$ | $+ \Rightarrow \div$ |

$20 \times 12 + 4 - 16 \div 5 = ?$

or $? = 20 - 12 \div 4 + 16 \times 5$

or $? = 20 - 3 + 80 = 97$

5. (b) $? = 20 R 16 K 5 M 10 T 8$

or $20 + 16 \times 5 \div 10 - 8$

or $20 + 16 \times \frac{5}{10} - 8$

or $20 + 8 - 8 = 20$

6. (a) $15 \div 5 \times 9 + 3 - 6 = ?$

or $? = 15 \times 5 - 9 \div 3 + 6$

or $? = 15 \times 5 - 3 + 6$

or $? = 81 - 3 = 78$

7. (e) $40 R 8 W 10 T 12 P 16 = ?$

or $? = 40 \div 8 \times 10 - 12 + 16$

or $? = 5 \times 10 - 12 + 16$

or $? = 66 - 12 = 54$

8. (b) $? = 288 \div 32 \times 6 - 45 + 9$

or $? = 9 \times 6 - 45 + 9$

or $? = 54 - 45 + 9 = 18$

9. (c) $40\$20@2\#40\star20\#38$

$40 - 20 \times 2 + 40 \div 20 + 38$

$= 40 - 20 \times 2 + \frac{40}{20} + 38$

$= 40 - 40 + 2 + 38$

10. (a) $60 T 48 P 8 W 6 R 9 = ?$

$\Rightarrow 60 + 48 \div 8 - 6 \times 9 = ?$

$\Rightarrow 60 + 6 - 54 = ?$

$\Rightarrow 12 = ?$

11. (e) $10 \neg 10=5 \neg 10 ? 50 \bullet 10$

$= 10 \times 10 - 5 \times 10 + 50 \div 10$

$10 \times 10 - 5 \times 10 + \frac{50}{10}$

$= 100 - 50 + 5$

$= 55$

12. (b) Using the given symbols, we have:

Given expression

$= 8 + 7 \times 8 \div 40 - 2 = 8 + 7 \times \frac{1}{5} - 2$

$= \frac{37}{5} = 7\frac{2}{5}$

13. (d) Using the proper symbols, we have:

Given expression $= 16 + 24 \div 8 - 6 \div 2 \times 3$

$= 16 + 3 - 3 \times 3$

$= 16 + 3 - 9 = 10.$

14. (d) Using the proper notations in (d), we get

$9 + 9 \div 9 - 9 \times 9$

$= 9 + 1 - 9 \times 9 = 9 + 1 - 81 = -71.$

\therefore option (d) is true.

15. (d) $40 + 12 \div 3 \times 6 - 60 = 4$

16. (c) $9 \times 8 + 8 \div 4 - 9 = 65$



17. (c) $24 \times 4 \div 8 + 4 = 24 \times \frac{1}{2} + 4 = 12 + 4 = 16$
18. (b) $20 + 12 - 4 \div 8 \times 6 = 29$
19. (d) Using the proper notations in (d), we get
 $8 \times 8 + 8 \div 8 - 8 = 8 \times 8 + 1 - 8$
 $= 64 + 1 - 8 = 57$
20. (b) Since, $20 \times 10 = 200$, therefore, $-$ means \times
 $8 + 4 = 12$, therefore, \div means $+$.
 $6 - 2 = 4$, therefore, \times means $-$.
and $12 \div 3 = 4$, therefore, $+$ means \div .
Now, given expression
 $= 100 \times 10 - 1000 + 1000 \div 100 - 10$
 $= 1000 - 1000 + 10 - 10 = 0$
21. (c) Using the proper signs, we get:
 $36 - 8 + 4 + 6 \div 2 \times 3 = 36 - 2 + 3 \times 3$
 $= 36 - 2 + 9$
 $= 45 - 2 = 43$
22. (c) Using proper notations, we have:
(1) given statement is $3 \div 2 + 4 < 9 + 3 - 1$
or $\frac{11}{2} < 2$, which is not true.
(2) given statement is $3 + 2 + 4 < 18 \div 3 - 2$
or $9 < 4$, which is not true.
(3) given statement is $3 + 2 - 4 > 8 \div 4 - 2$
or $1 > 0$, which is true.
(4) given statement is $3 \div 2 - 4 > 9 \div 3 - 3$
or $-\frac{5}{2} > 0$, which is not true. So, the statement
(c) is true.
23. (d) Using the correct symbols, we have:
Given expression $= 8 + 36 \div 6 - 6 \div 2 \times 3$
 $= 8 + 6 - 3 \times 3 = 5$
24. (b) Using the proper notations in (2), we get the statement as $5 \times 2 \div 2 < 10 - 4 + 2$ or $5 < 8$, which is true.
25. (a) Using the proper signs in the given expression, we get
 $175 \div 5 \times 20 - 3 \times 10 = 7 + 5 \times 20 - 3 \times 10$
 $= 7 + 100 - 30$
 $= 107 - 30 = 77$.
26. (a) Given that : $20 - 10 = 200$.
But, actually $20 \times 10 = 200$, so $-$ means \times .
Given that $8 \div 4 = 12$, But actually $8 \div 4 = 12$.
So, $+$ means $+$.
Given that : $6 \times 2 = 4$
But actually $6 - 2 = 4$. So, \times means $-$.
Thus, in the given mathematical language $-$ means \times ,
 \div means $+$ and \times means $-$ so, + Given expression
 $= 100 \times 10 - 1000 + 1000 \div 100 - 10$
 $1000 - 1000 + 10 - 10 = 0$.
27. (d) Using the correct symbols, we have
Given expression $= 24 \times 12 + 18 \div 9$
 $= 288 + 2 = 290$.
28. (b) Using the correct symbols, we have
Given expression $= (3 \times 15 + 19) \div 8 - 6$
 $= 64 \div 8 - 6 = 8 - 6 = 2$.
29. (a) Using the correct symbols, we have
Given expression
 $= \frac{(36-4)+8-4}{4 \times 8 - 2 \times 16 + 1} = \frac{32+8-4}{32-32+1} = \frac{4-4}{0+1} = 0$.
30. (d) Using the correct symbols, we have
Given expression $= 12 - 12 \times 28 \div 7 + 15$
 $= 12 - 12 \times 4 + 15 = 12 - 48 + 15 = 27 - 48$
 $= -21$.
31. (c) Using the correct symbols, we have
Given expression $= (10 \times 4) + (4 \times 4) - 6$
 $= 40 + 16 - 6$
 $= 56 - 6 = 50$.
32. (d) Using the proper notations in (4) we get the statement as $2 \times 5 - 6 + 2 = 6$
or $10 - 6 + 2 = 6$ or $6 = 6$, which is true.
33. (c) Using the proper notations in (3), we get the statement as $5 \times 2 + 2 < 10 - 4 + 8$
or $5 \times 1 < 18 - 4$ or $5 < 14$,
which is true.
34. (d) Interchanging ($+$ and \div) and (2 and 4), we get :
(1) $4 \div 2 + 3 = 3$ or $5 = 3$, which is false
(2) $2 \div 4 + 6 = 1.5$ or $6.5 = 1.5$, which is false.
(3) $2 + 4 \div 3 = 4$ or $\frac{10}{3} = 4$, which is false.



