CHAPTER-20

SUBSTITUTION

QUESTION BANK

AVERAGE LEVEL

1. Fill in the following blanks, when:

x = 3, y = 6, z = 18, a = 2, b = 8, c = 32 and d = 0.

(i) x + y = …….

(ii) y – x = …….

(iii) y / x = …….

(iv) c ÷ b = …….

(v) z ÷ x = …….

2. Find the value of:

(i) p + 2q + 3r, when p = 1, q = 5 and r = 2

(ii) 2a + 4b + 5c, when a = 5, b = 10 and c = 20

(iii) 3a – 2b, when a = 8 and b = 10

(iv) 5x + 3y – 6z, when x = 3, y = 5 and z = 4

(v) 2p – 3q + 4r – 8s, when p = 10, q = 8, r = 6 and s = 2

3. Find the value of:

(i) 4pq × 2r, when p = 5, q = 3 and r = 1 / 2

(ii) yx / z, when x = 8, y = 4 and z = 16

(iii) (a + b – c) / 2a, when a = 5, b = 7 and c = 2

4. If a = 3, b = 0, c = 2 and d = 1, find the value of:

(i) $3a + 2b – 6c + 4d$

(ii) $6a – 3b – 4c – 2d$

(iii) $ab – bc + cd – da$

(iv) $abc – bcd + cda$

(v) $a^2 + 2b^2 – 3c^2$

5. Find the value of $5x^2 – 3x + 2$, when $x = 2$

6. Find the value of $3x^3 – 4x^2 + 5x – 6$, when $x = – 1$

7. Show that the value of $x^3 – 8x^2 + 12x – 5$ is zero, when $x = 1$

8. State true and false:

(i) The value of $x + 5 = 6$, when $x = 1$

(ii) The value of $2x – 3 = 1$, when $x = 0$

(iii) $(2x – 4) / (x + 1) = -1$, when $x = 1$

9. If $x = 2$, $y = 5$ and $z = 4$, find the value of each of the following:

(i) $x / 2x^2$

(ii) xz / yz

(iii) z^x

(iv) y^x

(v) $x^2y^2z^2 / xz$

10. If $a = 3$, find the values of a^2 and 2^a

Moderate level

11. If $m = 2$, find the difference between the values of $4m^3$ and $3m^4$.

12. Evaluate:

(i) $(23 – 15) + 4$

(ii) $5x + (3x + 7x)$

(iii) 6m – (4m – m)

(iv) (9a – 3a) + 4a

(v) 35b – (16b + 9b)

13. Simplify:

(i) 12x – (5x + 2x)

(ii) 10m + (4n – 3n) – 5n

(iii) (15b – 6b) – (8b + 4b)

(iv) – (- 4a – 8a)

(v) x – (x – y) – (- x + y)

14. Simplify:

(i) x – (y – z) + x + (y – z) + y – (z + x)

(ii) x – [y + {x – (y + x)}]

(iii) 4x + 3 (2x – 5y)

(iv) 2 (3a – b) – 5 (a – 3b)

(v) p + 2 $(q - \overline{r + p})$

15. Fill in the blanks:

(i) 2a + b – c = 2a + (……)

(ii) 3x – z + y = 3x – (……)

(iii) 6p – 5x + q = 6p – (…….)

(iv) a + b – c + d = a + (……..)

(v) 5a + 4b + 4x – 2c = 4x – (……)

16. Insert the bracket as indicated:

(i) x – 2y = – (……)

(ii) m + n – p = – (……..)

(iii) $a + 4b – 4c = a + (……..)$

(iv) $a – 3b + 5c = a – (……..)$

(v) $x^2 – y^2 + z^2 = x^2 – (……..)$

17. $x – y – z = x – (……..)$

18. $x^2 – xy^2 – 2xy – y^2 = x^2 – (……..)$

19. $4a – 9 + 2b – 6 = 4a – (……..)$

20. $x^2 – y^2 + z^2 + 3x – 2y = x^2 – (……..)$

21. $-2a^2 + 4ab – 6a^2b^2 + 8ab^2 = -2a (……..)$

Higher Level

Simplify:

22. $2x – (x + 2y – z)$

23. $p + q – (p – q) + (2p – 3q)$

24. $9x – (-4x + 5)$

25. $6a – (- 5a – 8b) + (3a + b)$

26. $(p – 2q) – (3q – r)$

27. $9a (2b – 3a + 7c)$

28. $– 5m (- 2m + 3n – 7p)$

29. $– 2x (x + y) + x^2$

30. $b (2b – 1/b) – 2b (b – 1/b)$

31. $8 (2a + 3b – c) – 10 (a + 2b + 3c)$

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