

EduSahara™ Learning Center Assignment

Grade : Class VIII, ICSE
Chapter : Special Products and Expansions
Name : Expansions Using Identities
Licensed To : Teachers and Students for non-commercial use

1. The expanded form of $(x + 2)(2x + 7)$ is

(i) $(2x^2 + 11x + 14)$

(ii) $(3x^2 + 11x + 14)$

(iii) $(5x^2 + 11x + 14)$

(iv) $(x^2 + 11x + 14)$

(v) $(-x^2 + 11x + 14)$

2. The expanded form of $(x + 9)(x - 9)(3x - 1)$ is

(i) $(6x^3 - x^2 - 243x + 81)$

(ii) $(4x^3 - x^2 - 243x + 81)$

(iii) $(2x^3 - x^2 - 243x + 81)$

(iv) $(3x^3 - x^2 - 243x + 81)$

(v) $(-x^2 - 243x + 81)$

3. $(a + b)^2$

(i) $(2a^2 + 2ab + b^2)$ (ii) $(a^2 + b^2)$

(iii) $(a^2 + 2ab + b^2)$ (iv) $(2ab + b^2)$

(v) $(a^2 + 5ab + b^2)$

4. $(a - b)^2$

(i) $(2a^2 - 2ab + b^2)$ (ii) $(a^2 - 5ab + b^2)$

(iii) $(a^2 + ab + b^2)$ (iv) $(a^2 - 2ab + b^2)$

(v) $(-2ab + b^2)$

5. $(a + b)(a - b)$

(i) $(2a^2 - b^2)$ (ii) $(a^2 + 2b^2)$ (iii) $(a^2 - b^2)$

(iv) $(a^2 - 4b^2)$ (v) $(-b^2)$

6. $(a + b)^3$

(i) $(2a^3 + 3a^2b + 3ab^2 + b^3)$

(ii) $(a^3 + 6a^2b + 3ab^2 + b^3)$

(iii) $(3a^2b + 3ab^2 + b^3)$

(iv) $(a^3 + 3a^2b + 3ab^2 + b^3)$

(v) $(a^3 + a^2b + 3ab^2 + b^3)$

7. $(a - b)^3$

(i) $(-3a^2b + 3ab^2 - b^3)$

(ii) $(a^3 - 6a^2b + 3ab^2 - b^3)$

(iii) $(2a^3 - 3a^2b + 3ab^2 - b^3)$

(iv) $(a^3 - a^2b + 3ab^2 - b^3)$

(v) $(a^3 - 3a^2b + 3ab^2 - b^3)$

8. $(a + b + c)^2$

(i) $(2ab + 2ac + b^2 + 2bc + c^2)$

(ii) $(2a^2 + 2ab + 2ac + b^2 + 2bc + c^2)$

(iii) $(a^2 + 2ab + 2ac + b^2 + 2bc + c^2)$

(iv) $(a^2 + 2ac + b^2 + 2bc + c^2)$

(v) $(a^2 + 5ab + 2ac + b^2 + 2bc + c^2)$

9. $(a + b)(a^2 - ab + b^2)$

(i) $(a^3 + 3b^3)$ (ii) $(a^3 - 2b^3)$ (iii) $(2a^3 + b^3)$

(iv) b^3 (v) $(a^3 + b^3)$

10. $(a - b)(a^2 + ab + b^2)$

(i) $(a^3 - 3b^3)$ (ii) $(-b^3)$ (iii) $(2a^3 - b^3)$

(iv) $(a^3 - b^3)$ (v) $(a^3 + 2b^3)$

11. $(a + b + c)(a^2 - ab - ac + b^2 - bc + c^2)$

(i) $(a^3 - abc + b^3 + c^3)$

(ii) $(-3abc + b^3 + c^3)$

(iii) $(2a^3 - 3abc + b^3 + c^3)$

(iv) $(a^3 - 6abc + b^3 + c^3)$

(v) $(a^3 - 3abc + b^3 + c^3)$

12. $(-2a + 2b)^2$

(i) $(4a^2 - 8ab + 4b^2)$ (ii) $(4a^2 - 11ab + 4b^2)$

(iii) $(5a^2 - 8ab + 4b^2)$ (iv) $(3a^2 - 8ab + 4b^2)$

(v) $(4a^2 - 5ab + 4b^2)$

13. $(-3a - 2b)^2$

(i) $(9a^2 + 14ab + 4b^2)$ (ii) $(9a^2 + 12ab + 4b^2)$

(iii) $(8a^2 + 12ab + 4b^2)$ (iv) $(10a^2 + 12ab + 4b^2)$

(v) $(9a^2 + 10ab + 4b^2)$

14. $(-2a + 2b)(-2a - 2b)$

(i) $(4a^2 - 6b^2)$ (ii) $(5a^2 - 4b^2)$ (iii) $(4a^2 - b^2)$

(iv) $(4a^2 - 4b^2)$ (v) $(3a^2 - 4b^2)$

15. $(a - 5b)^3$

(i) $(2a^3 - 15a^2b + 75ab^2 - 125b^3)$

(ii) $(a^3 - 17a^2b + 75ab^2 - 125b^3)$

(iii) $(a^3 - 13a^2b + 75ab^2 - 125b^3)$

(iv) $(a^3 - 15a^2b + 75ab^2 - 125b^3)$

(v) $(-15a^2b + 75ab^2 - 125b^3)$

16. $(4a - b)^3$

(i) $(64a^3 - 50a^2b + 12ab^2 - b^3)$

$$(ii) \ (64 a^3 - 46 a^2 b + 12 a b^2 - b^3)$$

$$(iii) \ (63 a^3 - 48 a^2 b + 12 a b^2 - b^3)$$

$$(iv) \ (65 a^3 - 48 a^2 b + 12 a b^2 - b^3)$$

$$(v) \ (64 a^3 - 48 a^2 b + 12 a b^2 - b^3)$$

$$17. \ (3 a + 4 b + 4 c)^2$$

$$(i) \ (8 a^2 + 24 a b + 24 a c + 16 b^2 + 32 b c + 16 c^2)$$

$$(ii) \ (9 a^2 + 22 a b + 24 a c + 16 b^2 + 32 b c + 16 c^2)$$

$$(iii) \ (9 a^2 + 26 a b + 24 a c + 16 b^2 + 32 b c + 16 c^2)$$

$$(iv) \ (9 a^2 + 24 a b + 24 a c + 16 b^2 + 32 b c + 16 c^2)$$

$$(v) \ (10 a^2 + 24 a b + 24 a c + 16 b^2 + 32 b c + 16 c^2)$$

$$18. \ (2 a - b) (4 a^2 + 2 a b + b^2)$$

$$(i) \ (8 a^3 - 4 b^3) \ (ii) \ (9 a^3 - b^3) \ (iii) \ (8 a^3 - b^3)$$

$$(iv) \ (7 a^3 - b^3) \ (v) \ (8 a^3 + 2 b^3)$$

$$19. \ (-2 a + 4 b) (4 a^2 + 8 a b + 16 b^2)$$

$$(i) \ (-8 a^3 + 67 b^3) \ (ii) \ (-9 a^3 + 64 b^3) \ (iii) \ (-8 a^3 + 64 b^3)$$

$$(iv) \ (-8 a^3 + 61 b^3) \ (v) \ (-7 a^3 + 64 b^3)$$

$$20. \ (5 a - 5 b - 4 c) (25 a^2 + 25 a b + 20 a c + 25 b^2 - 20 b c + 16 c^2)$$

$$(i) \ (126 a^3 - 300 a b c - 125 b^3 - 64 c^3)$$

$$(ii) \ (124a^3 - 300abc - 125b^3 - 64c^3)$$

$$(iii) \ (125a^3 - 300abc - 125b^3 - 64c^3)$$

$$(iv) \ (125a^3 - 297abc - 125b^3 - 64c^3)$$

$$(v) \ (125a^3 - 303abc - 125b^3 - 64c^3)$$

$$21. \ (\frac{3}{2}a + \frac{3}{2}b)^2$$

$$(i) \ (\frac{13}{6}a^2 + \frac{9}{2}ab + \frac{9}{4}b^2) \quad (ii) \ (\frac{9}{4}a^2 + \frac{9}{2}ab + \frac{9}{4}b^2)$$

$$(iii) \ (\frac{9}{4}a^2 + \frac{7}{2}ab + \frac{9}{4}b^2) \quad (iv) \ (\frac{9}{4}a^2 + \frac{11}{2}ab + \frac{9}{4}b^2)$$

$$(v) \ (\frac{5}{2}a^2 + \frac{9}{2}ab + \frac{9}{4}b^2)$$

$$22. \ (-\frac{3}{2}a + \frac{2}{3}b)^2$$

$$(i) \ (\frac{9}{4}a^2 - 5ab + \frac{4}{9}b^2) \quad (ii) \ (\frac{9}{4}a^2 + \frac{4}{9}b^2)$$

$$(iii) \ (\frac{5}{2}a^2 - 2ab + \frac{4}{9}b^2) \quad (iv) \ (\frac{9}{4}a^2 - 2ab + \frac{4}{9}b^2)$$

$$(v) \ (\frac{13}{6}a^2 - 2ab + \frac{4}{9}b^2)$$

$$23. \ (\frac{3}{2}a + 3b)(\frac{3}{2}a - 3b)$$

$$(i) \ (\frac{13}{6}a^2 - 9b^2) \quad (ii) \ (\frac{9}{4}a^2 - 11b^2) \quad (iii) \ (\frac{9}{4}a^2 - 9b^2)$$

$$(iv) \ (\frac{9}{4}a^2 - 6b^2) \quad (v) \ (\frac{5}{2}a^2 - 9b^2)$$

$$24. \ (-\frac{2}{3}a + \frac{3}{2}b)^3$$

$$(i) \ (-\frac{8}{27}a^3 + 2a^2b - \frac{9}{2}ab^2 + \frac{27}{8}b^3)$$

$$(ii) \ (-\frac{8}{25}a^3 + 2a^2b - \frac{9}{2}ab^2 + \frac{27}{8}b^3)$$

$$(iii) \ (-\frac{8}{29}a^3 + 2a^2b - \frac{9}{2}ab^2 + \frac{27}{8}b^3)$$

$$(iv) \left(-\frac{8}{27}a^3 + 5a^2b - \frac{9}{2}ab^2 + \frac{27}{8}b^3 \right)$$

$$(v) \left(-\frac{8}{27}a^3 - a^2b - \frac{9}{2}ab^2 + \frac{27}{8}b^3 \right)$$

$$25. \left(-\frac{2}{3}a - \frac{3}{2}b \right)^3$$

$$(i) \left(-\frac{8}{27}a^3 + a^2b - \frac{9}{2}ab^2 - \frac{27}{8}b^3 \right)$$

$$(ii) \left(-\frac{8}{25}a^3 - 2a^2b - \frac{9}{2}ab^2 - \frac{27}{8}b^3 \right)$$

$$(iii) \left(-\frac{8}{29}a^3 - 2a^2b - \frac{9}{2}ab^2 - \frac{27}{8}b^3 \right)$$

$$(iv) \left(-\frac{8}{27}a^3 - 2a^2b - \frac{9}{2}ab^2 - \frac{27}{8}b^3 \right)$$

$$(v) \left(-\frac{8}{27}a^3 - 4a^2b - \frac{9}{2}ab^2 - \frac{27}{8}b^3 \right)$$

$$26. \left(-\frac{3}{2}a - 3b + \frac{3}{2}c \right)^2$$

$$(i) \left(\frac{9}{4}a^2 + 12ab - \frac{9}{2}ac + 9b^2 - 9bc + \frac{9}{4}c^2 \right)$$

$$(ii) \left(\frac{5}{2}a^2 + 9ab - \frac{9}{2}ac + 9b^2 - 9bc + \frac{9}{4}c^2 \right)$$

$$(iii) \left(\frac{13}{6}a^2 + 9ab - \frac{9}{2}ac + 9b^2 - 9bc + \frac{9}{4}c^2 \right)$$

$$(iv) \left(\frac{9}{4}a^2 + 7ab - \frac{9}{2}ac + 9b^2 - 9bc + \frac{9}{4}c^2 \right)$$

$$(v) \left(\frac{9}{4}a^2 + 9ab - \frac{9}{2}ac + 9b^2 - 9bc + \frac{9}{4}c^2 \right)$$

$$27. \left(\frac{3}{2}a + \frac{3}{2}b \right) \left(\frac{9}{4}a^2 - \frac{9}{4}ab + \frac{9}{4}b^2 \right)$$

$$(i) \left(\frac{33}{10}a^3 + \frac{27}{8}b^3 \right) \quad (ii) \left(\frac{27}{8}a^3 + \frac{27}{8}b^3 \right) \quad (iii) \left(\frac{27}{8}a^3 + \frac{25}{8}b^3 \right)$$

$$(iv) \left(\frac{7}{2}a^3 + \frac{27}{8}b^3 \right) \quad (v) \left(\frac{27}{8}a^3 + \frac{29}{8}b^3 \right)$$

$$28. \left(-\frac{3}{2}a + \frac{2}{3}b \right) \left(\frac{9}{4}a^2 + ab + \frac{4}{9}b^2 \right)$$

$$(i) \left(-\frac{7}{2}a^3 + \frac{8}{27}b^3 \right) \quad (ii) \left(-\frac{27}{8}a^3 + \frac{8}{27}b^3 \right) \quad (iii) \left(-\frac{27}{8}a^3 + \frac{10}{27}b^3 \right)$$

$$(iv) \left(-\frac{33}{10}a^3 + \frac{8}{27}b^3 \right) \quad (v) \left(-\frac{27}{8}a^3 + \frac{2}{9}b^3 \right)$$

$$29. \left(-\frac{3}{2}a - 3b + \frac{3}{2}c \right) \left(\frac{9}{4}a^2 - \frac{9}{2}ab + \frac{9}{4}ac + 9b^2 + \frac{9}{2}bc + \frac{9}{4}c^2 \right)$$

$$(i) \left(-\frac{27}{8}a^3 - \frac{79}{4}abc - 27b^3 + \frac{27}{8}c^3 \right)$$

$$(ii) \left(-\frac{7}{2}a^3 - \frac{81}{4}abc - 27b^3 + \frac{27}{8}c^3 \right)$$

$$(iii) \left(-\frac{27}{8}a^3 - \frac{83}{4}abc - 27b^3 + \frac{27}{8}c^3 \right)$$

$$(iv) \left(-\frac{33}{10}a^3 - \frac{81}{4}abc - 27b^3 + \frac{27}{8}c^3 \right)$$

$$(v) \left(-\frac{27}{8}a^3 - \frac{81}{4}abc - 27b^3 + \frac{27}{8}c^3 \right)$$

$$30. \text{ Expand } \left(x + \frac{1}{x} \right)^2$$

$$(i) \quad x^2 + 2 + \frac{1}{x}$$

$$(ii) \quad x^2 + 2 + \frac{1}{x^2}$$

$$(iii) \quad -2x^2 + 2 + \frac{1}{x^2}$$

$$(iv) \quad x^2 + 2 + \frac{1}{x^3}$$

$$(v) \quad x^2 + 2 + \frac{4}{x^2}$$

31. Expand $\left(x - \frac{1}{x}\right)^2$

(i) $x^2 - 2 + \frac{1}{x^2}$

(ii) $-x^2 - 2 + \frac{1}{x^2}$

(iii) $x^2 - 1 + \frac{1}{x^2}$

(iv) $3x^2 - 2 + \frac{1}{x^2}$

(v) $x - 2 + \frac{1}{x^2}$

32. Expand $\left(x - \frac{1}{x}\right)\left(x + \frac{1}{x}\right)\left(x^2 + \frac{1}{x^2}\right)$

(i) $-x - \frac{2}{x^3} - \frac{1}{x^7}$

(ii) $x^4 - \frac{1}{x^4}$

(iii) $x^5 + x^3 + x + \frac{1}{x}$

(iv) $3x^5 + 7x + 3x^3 + \frac{7}{x} + \frac{4}{x^3} + \frac{4}{x^5}$

33. Expand $(x - 1)(x + 1)(x^2 + 1)$

(i) $4x^5 + 8x^3 + 4x^4 + 8x^2 + 4x + 4$

(ii) $-2x^3 - 2x$

(iii) $x^5 + x^4 + x^3 + x^2$

(iv) $x^4 - 1$

34. Evaluate $(c^{\frac{1}{2}} + d^{\frac{1}{2}})(c^{\frac{1}{2}} - d^{\frac{1}{2}}) =$

(i) 0 (ii) 1 (iii) $(c+d)$ (iv) $(c+d)^2$ (v) $(c-d)$

35. Evaluate $(f^{\frac{1}{3}} + g^{\frac{1}{3}})(f^{\frac{2}{3}} - f^{\frac{1}{3}}g^{\frac{1}{3}} + g^{\frac{2}{3}}) =$

(i) $(f+g)^2$ (ii) $(f-g)^2$ (iii) $f+g$ (iv) 0 (v) $f-g$

36. Evaluate $(b^{\frac{1}{3}} - c^{\frac{1}{3}})(b^{\frac{2}{3}} + b^{\frac{1}{3}}c^{\frac{1}{3}} + c^{\frac{2}{3}}) =$

(i) $b - c$ (ii) 0 (iii) $b + c$ (iv) $(b+c)^2$ (v) $(b-c)^2$

37. $(e^{\frac{1}{3}} + f^{\frac{1}{3}} + g^{\frac{1}{3}})(e^{\frac{2}{3}} + f^{\frac{2}{3}} + g^{\frac{2}{3}} - e^{\frac{1}{3}}f^{\frac{1}{3}} - f^{\frac{1}{3}}g^{\frac{1}{3}} - g^{\frac{1}{3}}e^{\frac{1}{3}}) =$

(i) $(e-f-g)^2$ (ii) $(e-f-g)$ (iii) 0

(iv) $(e+f+g)^2$ (v) $e + f + g - 3g^{\frac{1}{3}}e^{\frac{1}{3}}f^{\frac{1}{3}}$

38. Evaluate $(p^2 + q^2)(p^4 - p^2q^2 + q^4) =$

$$(i) \quad p^6 - 2q^2p^4 + 2q^4p^2 - q^6 \quad (ii) \quad 0$$

$$(iii) \quad p^6 + q^6$$

$$(iv) \quad p^6 + 2q^2p^4 + 2q^4p^2 + q^6$$

$$(v) \quad p^6 - q^6$$

39. Evaluate $(b^2 - 1)(b^4 + b^2 + 1) =$

$$(i) \quad 0$$

$$(ii) \quad b^6 - 1$$

$$(iii) \quad b^6 + 2b^4 + 2b^2 + 1$$

$$(iv) \quad b^6 + 2b^4 - 1 \quad (v) \quad b^6 - 2b^2 + 1$$

Assignment Key

- 1) (i)
- 2) (iv)
- 3) (iii)
- 4) (iv)
- 5) (iii)
- 6) (iv)
- 7) (v)
- 8) (iii)
- 9) (v)
- 10) (iv)
- 11) (v)
- 12) (i)
- 13) (ii)
- 14) (iv)
- 15) (iv)
- 16) (v)
- 17) (iv)
- 18) (iii)
- 19) (iii)
- 20) (iii)
- 21) (ii)
- 22) (iv)
- 23) (iii)
- 24) (i)
- 25) (iv)
- 26) (v)
- 27) (ii)
- 28) (ii)
- 29) (v)
- 30) (ii)
- 31) (i)
- 32) (ii)
- 33) (iv)
- 34) (v)
- 35) (iii)
- 36) (i)
- 37) (v)
- 38) (iii)
- 39) (ii)