

**EduSahara™ Learning Center Assignment****Grade : Class VIII, SSC****Chapter : Algebraic Expressions****Name : Algebra Identities****Licensed To : Teachers and Students for non-commercial use**

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1.  $(a + b)^2$

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

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

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

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2.  $(a - b)^2$

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

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

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

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

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

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

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4.  $(a + b)^3$

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

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

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

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

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

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

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

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

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

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

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

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$$6. (a + b + c)^2$$

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

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

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

$$(iv) (a^2 + 4ab + 2ac + b^2 + 2bc + c^2)$$

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

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$$7. (a + b)(a^2 - ab + b^2)$$

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

$$(iv) (a^3 + b^3) \quad (v) (a^3 + 4b^3)$$

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

(i)  $(a^3 - 4b^3)$  (ii)  $(a^3 + b^3)$  (iii)  $(2a^3 - b^3)$

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

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

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

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

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

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

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

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10.  $(-a - 4b)^2$

(i)  $(a^2 + 11ab + 16b^2)$  (ii)  $(2a^2 + 8ab + 16b^2)$

(iii)  $(8ab + 16b^2)$  (iv)  $(a^2 + 8ab + 16b^2)$

(v)  $(a^2 + 5ab + 16b^2)$

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11.  $(a + 3b)^2$

(i)  $(a^2 + 3ab + 9b^2)$  (ii)  $(a^2 + 6ab + 9b^2)$

(iii)  $(6ab + 9b^2)$  (iv)  $(a^2 + 8ab + 9b^2)$

(v)  $(2a^2 + 6ab + 9b^2)$

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12.  $(-4a - 5b)(-4a + 5b)$

(i)  $(16a^2 - 25b^2)$  (ii)  $(17a^2 - 25b^2)$  (iii)  $(15a^2 - 25b^2)$

(iv)  $(16a^2 - 27b^2)$  (v)  $(16a^2 - 22b^2)$

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

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

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

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

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

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

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14.  $(5a + 4b)^3$

(i)  $(124a^3 + 300a^2b + 240ab^2 + 64b^3)$

(ii)  $(126a^3 + 300a^2b + 240ab^2 + 64b^3)$

(iii)  $(125a^3 + 300a^2b + 240ab^2 + 64b^3)$

(iv)  $(125a^3 + 302a^2b + 240ab^2 + 64b^3)$

(v)  $(125a^3 + 298a^2b + 240ab^2 + 64b^3)$

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15.  $(4a - 5b - 5c)^2$

(i)  $(16a^2 - 40ab - 40ac + 25b^2 + 50bc + 25c^2)$

(ii)  $(16a^2 - 38ab - 40ac + 25b^2 + 50bc + 25c^2)$

$$(iii) (17a^2 - 40ab - 40ac + 25b^2 + 50bc + 25c^2)$$

$$(iv) (16a^2 - 42ab - 40ac + 25b^2 + 50bc + 25c^2)$$

$$(v) (15a^2 - 40ab - 40ac + 25b^2 + 50bc + 25c^2)$$

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$$16. (-2a + 5b)(4a^2 + 10ab + 25b^2)$$

$$(i) (-8a^3 + 122b^3) (ii) (-8a^3 + 127b^3) (iii) (-8a^3 + 125b^3)$$

$$(iv) (-7a^3 + 125b^3) (v) (-9a^3 + 125b^3)$$

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$$17. (5a + 5b)(25a^2 - 25ab + 25b^2)$$

$$(i) (126a^3 + 125b^3) (ii) (124a^3 + 125b^3) (iii) (125a^3 + 125b^3)$$

$$(iv) (125a^3 + 127b^3) (v) (125a^3 + 123b^3)$$

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$$18. (2a + 4b + 3c)(4a^2 - 8ab - 6ac + 16b^2 - 12bc + 9c^2)$$

$$(i) (9a^3 - 72abc + 64b^3 + 27c^3)$$

$$(ii) (7a^3 - 72abc + 64b^3 + 27c^3)$$

$$(iii) (8a^3 - 72abc + 64b^3 + 27c^3)$$

$$(iv) (8a^3 - 75abc + 64b^3 + 27c^3)$$

$$(v) (8a^3 - 69abc + 64b^3 + 27c^3)$$

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$$19. (3a - \frac{3}{2}b)^2$$

$$(i) \left( 9a^2 - 11ab + \frac{9}{4}b^2 \right) \quad (ii) \left( 9a^2 - 9ab + \frac{9}{4}b^2 \right)$$

$$(iii) \left( 9a^2 - 7ab + \frac{9}{4}b^2 \right) \quad (iv) \left( 10a^2 - 9ab + \frac{9}{4}b^2 \right)$$

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

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$$20. (-2a + 3b)^2$$

$$(i) \left( 4a^2 - 14ab + 9b^2 \right) \quad (ii) \left( 5a^2 - 12ab + 9b^2 \right)$$

$$(iii) \left( 4a^2 - 12ab + 9b^2 \right) \quad (iv) \left( 3a^2 - 12ab + 9b^2 \right)$$

$$(v) \left( 4a^2 - 10ab + 9b^2 \right)$$

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$$21. \left( 3a + \frac{3}{2}b \right) \left( 3a - \frac{3}{2}b \right)$$

$$(i) \left( 8a^2 - \frac{9}{4}b^2 \right) \quad (ii) \left( 10a^2 - \frac{9}{4}b^2 \right) \quad (iii) \left( 9a^2 - \frac{9}{4}b^2 \right)$$

$$(iv) \left( 9a^2 - \frac{11}{4}b^2 \right) \quad (v) \left( 9a^2 - \frac{7}{4}b^2 \right)$$

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$$22. (-3a - 2b)^3$$

$$(i) \left( -28a^3 - 54a^2b - 36ab^2 - 8b^3 \right)$$

$$(ii) \left( -27a^3 - 57a^2b - 36ab^2 - 8b^3 \right)$$

$$(iii) \left( -26a^3 - 54a^2b - 36ab^2 - 8b^3 \right)$$

$$(iv) \left( -27a^3 - 51a^2b - 36ab^2 - 8b^3 \right)$$

$$(v) \left( -27a^3 - 54a^2b - 36ab^2 - 8b^3 \right)$$

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$$23. (3a - 2b)^3$$

$$(i) \quad (27a^3 - 57a^2b + 36ab^2 - 8b^3)$$

$$(ii) \quad (27a^3 - 54a^2b + 36ab^2 - 8b^3)$$

$$(iii) \quad (26a^3 - 54a^2b + 36ab^2 - 8b^3)$$

$$(iv) \quad (28a^3 - 54a^2b + 36ab^2 - 8b^3)$$

$$(v) \quad (27a^3 - 51a^2b + 36ab^2 - 8b^3)$$


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$$24. \quad \left(\frac{3}{2}a + 2b + 2c\right)^2$$

$$(i) \quad \left(\frac{9}{4}a^2 + 9ab + 6ac + 4b^2 + 8bc + 4c^2\right)$$

$$(ii) \quad \left(\frac{9}{4}a^2 + 6ab + 6ac + 4b^2 + 8bc + 4c^2\right)$$

$$(iii) \quad \left(\frac{13}{6}a^2 + 6ab + 6ac + 4b^2 + 8bc + 4c^2\right)$$

$$(iv) \quad \left(\frac{9}{4}a^2 + 3ab + 6ac + 4b^2 + 8bc + 4c^2\right)$$

$$(v) \quad \left(\frac{5}{2}a^2 + 6ab + 6ac + 4b^2 + 8bc + 4c^2\right)$$


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$$25. \quad \left(-\frac{2}{3}a - \frac{3}{2}b\right) \left(\frac{4}{9}a^2 - ab + \frac{9}{4}b^2\right)$$

$$(i) \quad \left(-\frac{8}{27}a^3 - \frac{27}{8}b^3\right) \quad (ii) \quad \left(-\frac{8}{29}a^3 - \frac{27}{8}b^3\right) \quad (iii) \quad \left(-\frac{8}{27}a^3 - \frac{29}{8}b^3\right)$$

$$(iv) \quad \left(-\frac{8}{27}a^3 - \frac{25}{8}b^3\right) \quad (v) \quad \left(-\frac{8}{25}a^3 - \frac{27}{8}b^3\right)$$


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$$26. \quad \left(\frac{3}{2}a + \frac{3}{2}b\right) \left(\frac{9}{4}a^2 - \frac{9}{4}ab + \frac{9}{4}b^2\right)$$

$$(i) \quad \left(\frac{27}{8}a^3 + \frac{25}{8}b^3\right) \quad (ii) \quad \left(\frac{33}{10}a^3 + \frac{27}{8}b^3\right) \quad (iii) \quad \left(\frac{27}{8}a^3 + \frac{29}{8}b^3\right)$$

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


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$$27. \left( 2a - 3b - \frac{3}{2}c \right) \left( 4a^2 + 6ab + 3ac + 9b^2 - \frac{9}{2}bc + \frac{9}{4}c^2 \right)$$

$$(i) \left( 8a^3 - 30abc - 27b^3 - \frac{27}{8}c^3 \right)$$

$$(ii) \left( 8a^3 - 27abc - 27b^3 - \frac{27}{8}c^3 \right)$$

$$(iii) \left( 8a^3 - 24abc - 27b^3 - \frac{27}{8}c^3 \right)$$

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

$$(v) \left( 7a^3 - 27abc - 27b^3 - \frac{27}{8}c^3 \right)$$

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$$28. \text{Factorize } (16a^2 + 24ab + 9b^2)$$

$$(i) (-4a - b)(-4a - b)$$

$$(ii) (-5a - 3b)(-5a - 3b)$$

$$(iii) (-3a - 3b)(-3a - 3b)$$

$$(iv) (-4a - 3b)(-4a - 3b)$$

$$(v) (-4a - 6b)(-4a - 5b)$$

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$$29. \text{Factorize } (25a^2 + 20ab + 4b^2)$$

$$(i) (-6a - 2b)(-6a - 2b)$$

$$(ii) (-5a - 2b)(-5a - 2b)$$

$$(iii) (-5a - 5b)(-5a - 4b)$$

$$(iv) (-5a)(-5a)$$

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

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$$30. \text{Factorize } (25a^2 - 16b^2)$$



(i)  $(-5a - 4b)(-5a + 4b)$

(ii)  $(-6a - 4b)(-6a + 4b)$

(iii)  $(-5a - 6b)(-5a + b)$

(iv)  $(-5a - 2b)(-5a + 7b)$

(v)  $(-4a - 4b)(-4a + 4b)$

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31. Factorize  $(125a^3 - 375a^2b + 375ab^2 - 125b^3)$

(i)  $(6a - 5b)(6a - 5b)(6a - 5b)$

(ii)  $(5a - 8b)(5a - 8b)(5a - 7b)$

(iii)  $(4a - 5b)(4a - 5b)(4a - 5b)$

(iv)  $(5a - 3b)(5a - 2b)(5a - 3b)$

(v)  $(5a - 5b)(5a - 5b)(5a - 5b)$

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32. Factorize  $(-64a^3 - 240a^2b - 300ab^2 - 125b^3)$

(i)  $(-4a - 7b)(-4a - 7b)(-4a - 7b)$

(ii)  $(-4a - 5b)(-4a - 5b)(-4a - 5b)$

(iii)  $(-5a - 5b)(-5a - 5b)(-5a - 5b)$

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

(v)  $(-3a - 5b)(-3a - 5b)(-3a - 5b)$

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33. Factorize  $(25a^2 + 50ab + 30ac + 25b^2 + 30bc + 9c^2)$

(i)  $(-4a - 5b - 3c)(-4a - 5b - 3c)$

(ii)  $(-6a - 5b - 3c)(-6a - 5b - 3c)$

(iii)  $(-5a - 5b - 3c)(-5a - 5b - 3c)$

(iv)  $(-5a - 2b - 3c)(-5a - 3b - 3c)$

$$(v) \quad (-5a - 7b - 3c)(-5a - 8b - 3c)$$

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34. Factorize  $(-a^3 + 27b^3)$

$$(i) \quad (-2a + 3b)(3ab + 9b^2)$$

$$(ii) \quad (-a + 3b)(a^2 + 3ab + 9b^2)$$

$$(iii) \quad (-a)(a^2 + 9b^2)$$

$$(iv) \quad (-a + 5b)(a^2 + 6ab + 9b^2)$$

$$(v) \quad 3b(2a^2 + 3ab + 9b^2)$$

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35. Factorize  $(27a^3 + 64b^3)$

$$(i) \quad (2a + 4b)(8a^2 - 12ab + 16b^2)$$

$$(ii) \quad (3a + 4b)(9a^2 - 12ab + 16b^2)$$

$$(iii) \quad (4a + 4b)(10a^2 - 12ab + 16b^2)$$

$$(iv) \quad (3a + 6b)(9a^2 - 10ab + 16b^2)$$

$$(v) \quad (3a + 2b)(9a^2 - 14ab + 16b^2)$$

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36. Factorize  $(-8a^3 + 36abc + 8b^3 + 27c^3)$

$$(i) \quad (-3a + 2b + 3c)(3a^2 + 4ab + 6ac + 4b^2 - 6bc + 9c^2)$$

$$(ii) \quad (-a + 2b + 3c)(5a^2 + 4ab + 6ac + 4b^2 - 6bc + 9c^2)$$

$$(iii) \quad (-2a + 2b + 3c)(4a^2 + 4ab + 6ac + 4b^2 - 6bc + 9c^2)$$

$$(iv) (-2a - b + 3c)(4a^2 + ab + 6ac + 4b^2 - 6bc + 9c^2)$$

$$(v) (-2a + 4b + 3c)(4a^2 + 7ab + 6ac + 4b^2 - 6bc + 9c^2)$$

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## Assignment Key

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