MATHS

BOOKS - PSEB

Algebraic Expressions

Example

1. Identify, in the following expressions, terms which are not constants. Give their numerical coefficients

$xy + 4, 13 - y^2, 13 - y + 5y^2, 4p^2q - 3pq^2 + 5$

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2. What are the coefficients of x in the following expressions?

$4x - 3y, 8 - x + y, y^2x - y, 2z - 5xz$

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3. What are the coefficients of y in the following expressions? $4x-3y, 8+yz, yz^2+5, my+m$

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4. State with reasons, which of the following pairs of terms are of like terms and which are of unlike terms:(i) 7x, 12y(ii)15x, –21x(iii) – 4ab, 7ba(iv) 3xy, 3x(v) $6xy^2, 9x^2y$(vii) $mn^2, 10mn$

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5. Get the algebraic expressions in the following cases using variables, constants and arithmetic operations

.Subtraction of z from y.

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6. Get the algebraic expressions in the following cases using variables, constants and arithmetic operations

.One-half of the sum of numbers x and y.

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7. Get the algebraic expressions in the following cases using variables, constants and arithmetic operations

.The number z multiplied by itself.

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8. Get the algebraic expressions in the following cases using variables, constants and arithmetic operations.

One-fourth of the product of numbers p and q

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9. Get the algebraic expressions in the following cases using variables, constants and arithmetic operations

.Numbers x and y both squared and added.

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10. Get the algebraic expressions in the following cases using variables, constants and arithmetic operations

.Number 5 added to three times the product of numbers m and n.

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11. Get the algebraic expressions in the following cases using variables, constants and arithmetic operations.

Product of numbers y and z subtracted from 10.

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12. Get the algebraic expressions in the following cases using variables, constants and arithmetic operations

Sum of numbers a and b subtracted from their product.

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13. Identify the terms and their factors in the following expressions Show the terms and factors by tree diagram

$x-3$

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14. Identify the terms and their factors in the following expressions Show the terms and factors by tree diagram$1+x+x^2$

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15. Identify the terms and their factors in the following expressions Show the terms and factors by tree diagram,

$y - y^3$

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16. Identify the terms and their factors in the following expressions Show the terms and factors by tree diagram

$5xy^2 + 7x^2y$

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17. Identify the terms and their factors in the following expressions Show the terms and factors by tree diagram

$-ab + 2b^2 - 3a^2$

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18. identify terms and factors in the expressions given below:

– 4x + 5

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19. identify terms and factors in the expressions given below:

– 4x + 5y

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20. identify terms and factors in the expressions given below:

$5y + 3y^2$

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21. identify terms and factors in the expressions given below:

$xy + 2x^2y^2$

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22. dentify terms and factors in the expressions given below:

pq + q

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23. dentify terms and factors in the expressions given below:

1.2 ab – 2.4 b + 3.6 a

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24. dentify terms and factors in the expressions given below:

$\frac{3}{4}x + \frac{1}{4}$

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25. dentify terms and factors in the expressions given below:

$0.1p^2 + 0.2q^2$

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26. Identify the numerical coefficients of terms (other than constants) in the following expressions

$5 - 3t^2$

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27. Identify the numerical coefficients of terms (other than constants) in the following expressions

$1 + t + t^2 + t^3$

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28. Identify the numerical coefficients of terms (other than constants) in the following expressions

x + 2xy + 3y

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29. Identify the numerical coefficients of terms (other than constants) in the following expressions

$100m + 1000n$

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30. Identify the numerical coefficients of terms (other than constants) in the following expressions

$-p^2q^2 + 7pq$

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31. Identify the numerical coefficients of terms (other than constants) in the following expressions

1.2 a + 0.8 b

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32. Identify the numerical coefficients of terms (other than constants) in the following expressions

$3.14r^2$

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33. Identify the numerical coefficients of terms (other than constants) in the following expressions

2 (l + b)

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34. Identify the numerical coefficients of terms (other than constants) in the following expressions

$0.1y + 0.01y^2$

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35. Identify terms which contain x and give the coefficient of x.

$y^2x + y$

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36. Identify terms which contain x and give the coefficient of x.

$13y^2 - 8yx$

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37. Identify terms which contain x and give the coefficient of x.

x + y + 2

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38. Identify terms which contain x and give the coefficient of x.

5 + z + zx

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39. Identify terms which contain x and give the coefficient of x.

1 + x + xy

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40. Identify terms which contain x and give the coefficient of x.

$12xy^2 + 25$

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41. Identify terms which contain x and give the coefficient of x.

$7x + xy^2$

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42. Identify terms which contain y2 and give the coefficient of y^2

$8 - xy^2$

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43. Identify terms which contain y^2 and give the coefficient of y^2

$5y^2 + 7x$

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44. Identify terms which contain y^2 and give the coefficient of y^2

$2x^2y - 15xy^2 + 7y^2$

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45. Classify into monomials, binomials and trinomials

4y – 7

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46. Classify into monomials, binomials and trinomials

y^2

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47. Classify into monomials, binomials and trinomials

x + y – xy

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48. Classify into monomials, binomials and trinomials

100

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49. Classify into monomials, binomials and trinomials

ab – a – b

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50. Classify into monomials, binomials and trinomials

5 – 3t

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51. Classify into monomials, binomials and trinomials

$4p^2q - 4pq^2$

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52. Classify into monomials, binomials and trinomials

7mn

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53. Classify into monomials, binomials and trinomials

$z^2 - 3z + 8$

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54. Classify into monomials, binomials and trinomials

$a^2 + b^2$

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55. Classify into monomials, binomials and trinomials

$z^2 + z$

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56. Classify into monomials, binomials and trinomials

$1 + x + x^2$

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57. State whether a given pair of terms is of like or unlike terms.

1, 100

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58. State whether a given pair of terms is of like or unlike terms.

$-7x, \frac{5}{2}x$

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59. State whether a given pair of terms is of like or unlike terms.

– 29x, – 29y

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60. State whether a given pair of terms is of like or unlike terms.

14xy, 42yx

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61. State whether a given pair of terms is of like or unlike terms.

$4m^2p, 4mp^2$

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62. State whether a given pair of terms is of like or unlike terms.

$12xz, 12x^2z^2$

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63. Identify like terms in the following

$-xy^2, -4yx^2, 8x^2, 2xy^2, 7y, -11x^2, -100x, -11yx, 20x^2y, -6x^2, y, 2xy, 3x$

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64. Identify like terms in the following

$10pq, 7p, 8q, -p^2q^2, -7qp, -100q, -23, 12q^2p^2, -5p2, 41, 2405p, 78qp, 13p^2q,$

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65. Collect like terms and simplify the expression: $12m^2 - 9m + 5m - 4m^2 - 7m + 10$

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66. subtract 24ab – 10b – 18a from 30ab + 12b + 14a.

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67. From the sum of $2y^2 + 3yz, -y^2 - yz - z^2$ and $yz + 2z^2$, subtract the sum of $3y^2 - z^2$ and $-y^2 + yz + z^2$.

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68. Simplify combining like terms:

21b – 32 + 7b – 20b

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69. Simplify combining like terms:

$-z^2 + 13z^2 - 5z + 7z^3 - 15z$

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70. Simplify combining like terms:

p – (p – q) – q – (q – p)

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71. Simplify combining like terms:

3a – 2b – ab – (a – b + ab) + 3ab + b – a

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72. Simplify combining like terms:

$5x^2y - 5x^2 + 3yx^2 - 3y^2 + x^2 - y^2 + 8xy^2 - 3y^2$

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73. Simplify combining like terms:

$(3y^2 + 5y - 4) - (8y - y2 - 4)$

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74. Add:

3mn, – 5mn, 8mn, – 4mn

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75. Add:

t – 8tz, 3tz – z, z – t

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76. Add:

$-7mn + 5, 12mn + 2, 9mn - 8, -2mn - 3$

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77. Add:

$a + b - 3, b - a + 3, a - b + 3$

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78. Add:

$14x + 10y - 12xy - 13, 18 - 7x - 10y + 8xy, 4xy$

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79. Add:

5m – 7n, 3n – 4m + 2, 2m – 3mn – 5

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80. Add:

$4x^2y, -3xy^2, -5xy^2, 5x^2y$

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81. Add

$3p^2q^2 - 4pq + 5, -10p^2q^2, 15 + 9pq + 7p^2q^2$

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82. Add

ab – 4a, 4b – ab, 4a – 4b

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83. Add

$x^2 - y^2 - 1, y^2 - 1 - x^2, 1 - x^2 - y^2$

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84. Subtract:

$-5y^2$ from y^2

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85. Subtract:

6xy from –12xy

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86. Subtract:

(a – b) from (a + b)

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87. Subtract:

a (b – 5) from b (5 – a)

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88. Subtract:

$-m^2 + 5mn$ from $4m^2 - 3mn + 8$

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89. Subtract:

$-x^2 + 10x - 5$ from $5x - 10$

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90. Subtract:

$5a^2 - 7ab + 5b^2$ from $3ab - 2a^2 - 2b^2$

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91. Subtract:

$4pq - 5q^2 - 3p^2$ from $5p^2 + 3q^2 - pq$

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92. What should be added to $x^2 + xy + y^2$ to obtain $2x^2 + 3xy$?

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93. What should be subtracted from 2a + 8b + 10 to get – 3a + 7b + 16?

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94. What should be taken away from $3x^2 - 4y^2 + 5xy + 20$ to obtain $-x^2 - y^2 + 6xy + 20$?

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95. From the sum of 3x – y + 11 and – y – 11, subtract 3x – y – 11.

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96. From the sum of 4 + 3x and $5 - 4x + 2x^2$, subtract the sum of $3x^2 - 5x$ and $-x^2 + 2x + 5$.

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97. Find the values of the following expressions for x = 2.

x + 4

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98. Find the values of the following expressions for x = 2.

4x – 3

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99. Find the values of the following expressions for x = 2.

$19 - 5x^2$

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100. Find the values of the following expressions for x = 2.

$100 - 10x^3$

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101. Find the value of the following expressions when n = – 2.

5n – 2

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102. Find the value of the following expressions when n = – 2.

$5n^2 + 5n - 2$

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103. Find the value of the following expressions when n = – 2.

$n^3 + 5n^2 + 5n - 2$

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104. Find the value of the following expressions for a = 3, b = 2.

a + b

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105. Find the value of the following expressions for a = 3, b = 2.

7a – 4b

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106. Find the value of the following expressions for a = 3, b = 2.

$a^2 + 2ab + b^2$

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107. Find the value of the following expressions for a = 3, b = 2.

$a^3 - b^3$

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108. If m = 2, find the value of:

m – 2

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109. If m = 2, find the value of:

3m – 5

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110. If m = 2, find the value of:

9 – 5m

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111. If m = 2, find the value of:

$3m^2 - 2m - 7$

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112. If m = 2, find the value of:

$\frac{5m}{2} - 4$

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113. If p = – 2, find the value of

4p + 7

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114. If p = – 2, find the value of

$-3p^2 + 4p + 7$

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115. If p = – 2, find the value of

$-2p^3-3p^2+4p+7$

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116. Find the value of the following expressions, when x = –1:

2x – 7

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117. Find the value of the following expressions, when x = –1:

– x + 2

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118. Find the value of the following expressions, when x = –1:

x^2+2x+1

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119. Find the value of the following expressions, when x = –1:

$2x^2 - x - 2$

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120. If a = 2, b = – 2, find the value of:

$a^2 + b^2$

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121. If a = 2, b = – 2, find the value of:

$a^2 + ab + b^2$

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122. If a = 2, b = – 2, find the value of:

$a^2 + ab + b^2$

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123. When a = 0, b = – 1, find the value of the given expressions

2a + 2b

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124. When a = 0, b = – 1, find the value of the given expressions

$2a^2 + b^2 + 1$

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125. When a = 0, b = – 1, find the value of the given expressions

$2a^2b + 2ab^2 + ab$

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126. When a = 0, b = – 1, find the value of the given expressions

$a^2 + ab + 2$

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127. Simplify the expressions and find the value if x is equal to 2

x + 7 + 4 (x – 5)

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128. Simplify the expressions and find the value if x is equal to 2

3 (x + 2) + 5x – 7

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129. Simplify the expressions and find the value if x is equal to 2

$6x + 5(x - 2)$

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130. Simplify the expressions and find the value if x is equal to 2

$4(2x - 1) + 3x + 11$

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131. Simplify these expressions and find their values if $x = 3$, $a = -1$, $b = -2$

$3x - 5 - x + 9$

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132. Simplify these expressions and find their values if $x = 3$, $a = -1$, $b = -2$

$2 - 8x + 4x + 4$

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133. Simplify these expressions and find their values if $x = 3$, $a = -1$, $b = -2$

$3a + 5 - 8a + 1$

Watch Video Solution

134. Simplify these expressions and find their values if $x = 3$, $a = -1$, $b = -2$

$10 - 3b - 4 - 5b$

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135. Simplify these expressions and find their values if $x = 3$, $a = -1$, $b = -2$

$2a - 2b - 4 - 5 + a$

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136. If z = 10, find the value of $z^3 - 3(z - 10)$.

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137. If p = – 10, find the value of $p^2 - 2p - 100$

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138. What should be the value of a if the value of $2x^2 + x - a$ equals to 5, when x = 0?

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139. Simplify the expression and find its value when a = 5 and b = – 3.

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

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140. Use the given algebraic expression to complete the table of number patterns.

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