MATHS

BOOKS - SUBHASH PUBLICATION

ALGEBRAIC EXPRESSIONS

Example

1. Get the algebraic expressions in the following cases using variables, constants and arithmetic operations: Subtraction of z from y.

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2. Get the algebraic expressions in the following cases using variables, constants and arithmetic operations: One-half of the sum of number x and y.

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3. Get the algebraic expressions in the following cases using variables, constants and arithmetic operations: The number z multiplied by itself.

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4. Get the algebraic expressions in the following cases using variables, constants and arithmetic operations: One-fourth of the product of number p and q.

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5. 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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6. 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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7. 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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8. 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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9. Identify the terms and their factors in the folowing expressions. Show the terms and factors by tree diagrams:- $x - 3$

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10. Identify the terms and their factors in the folowing expressions. Show the terms and factors by tree diagrams:- $1 + x + x^2$

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11. Identify the terms and their factors in the folowing expressions. Show the terms and factors by tree diagrams:- $y - y^3$

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12. Identify the terms and their factors in the folowing expressions. Show the terms and factors by tree diagrams:- $5xy^2 + 7x^2y$

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13. Identify the terms and their factors in the folowing expressions. Show the terms and factors by tree diagrams:- $-ab + 2b^2 - 3a^2$.

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14. Identify terms and factors in the expressions given below: $-4x + 5$

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15. Identify terms and factors in the expressions given below: $-4x + 5y$

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16. Identify terms and factors in the expressions given below: $5y + 3y^2$

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17. Identify terms and factors in the expressions given below: $xy + 2x^2y^2$

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18. Identify terms and factors in the expressions given below: $pq + q$

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19. Identify terms and factors in the expressions given below: $1.2ab - 2.4b + 3.6a$

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20. Identify terms and factors in the expressions given below: $\frac{3}{4}x + \frac{1}{4}$

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21. Identify the numerical coefficients of terms (other than constants) in the following expressions: $5 - 3t^2$

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22. Identify the numerical coefficients of terms (other than constants) in the following expressions: $5 + t + t^2 + t^3$

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23. Identify the numerical coefficients of terms (other than constants) in the following expressions: $x + 2xy + 3y$

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24. Identify the numerical coefficients of terms (other than constants) in the following expressions: 100m+1000n

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25. Identify the numerical coefficients of terms (other than constants) in the following expressions: $-p^2q^2 + 7pq$

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26. Identify the numerical coefficients of terms (other than constants) in the following expressions: 1.2a+0.8b

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27. Identify the numerical coefficients of terms (other than constants) in the following expressions: $3.14r^2$

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28. Identify the numerical coefficients of terms (other than constants) in the following expressions: 2(I+b)

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29. Identify the numerical coefficients of terms (other than constants) in the following expressions: $0.1y + 0.01y^2$

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30. Identify terms which contain x and give the coefficient of x:- $y^2x + y$

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31. Identify terms which contain x and give the coefficient of x:- $13y^2 - 8yx$

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32. Identify terms which contain x and give the coefficient of x:- x+y+2

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33. Identify terms which contain x and give the coefficient of x:- 5+z+zx

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34. Identify terms which contain x and give the coefficient of x:- 1+x+xy

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35. Identify terms which contain x and give the coefficient of x:- $12y^2x + 25$

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36. Identify terms which contain x and give the coefficient of x:- $7x + xy^2$

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37. Identify terms which contain y^2 and give the coefficient of y^2: $8 - xy^2$

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38. Identify terms which contain y^2 and give the coefficient of y^2: $5y^2 + 7x$

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39. Identify terms which contain y^2 and give the coefficient of y^2: $2x^2y - 15xy^2 + 7y^2$

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40. Classify into monomials, binomials and trinomials: 4y-7z

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41. Classify into monomials, boinomials and trinomials: y^2

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42. Classify into monomials, binomials and trinomials: x+y-xy

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43. Classify into monomials, boinomials and trinomials: 100

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44. Classify into monomials, boinomials and trinomials: ab-a-b

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45. Classify into monomials, boinomials and trinomials: 5-3t

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46. Classify into monomials, boinomials and trinomials: $4p^2q - 4pq^2$

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47. Classify into monomials, boinomials and trinomials: 7mn

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48. Classify into monomials, boinomials and trinomials: $z^2 - 3z + 8$

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49. Classify into monomials, boinomials and trinomials: $a^2 + b^2$

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50. Classify into monomials, boinomials and trinomials: $z^2 + z$

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51. Classify into monomials, boinomials and trinomials: $1 + x + x^2$

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52. State whetehr a given pair of terms is of like or unlike terms: 1,100

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53. State whetehr a given pair of terms is of like or unlike terms: $-7x, \frac{5}{2}x$

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54. State whetehr a given pair of terms is of like or unlike terms: $-29x, -29y$

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55. State whetehr a given pair of terms is of like or unlike terms: $14xy, 42yx$

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56. State whetehr a given pair of terms is of like or unlike terms: $4m^2p, 4mp^2$

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57. State whetehr a given pair of terms is of like or unlike terms: $12xz, 12x^2z^2$

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58. Identify like terms in the following: $xy^2, -4yx^2, 2xy^2, 7y, -11x^2 - 100x, -11yx, 20x^2y, -6x^2y, 2xy, 3x$

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59. Identify like terms in the following: $10pq, 7p, 8q, -p^2q^2 - 7qp, -7qp, -100q, -23, 12q^2p^2, -5p^2, 41, 2405p,$

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60. Simplify combining like terms: $21b - 32b + 7b - 20b$

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61. Simplify combining like terms: $-z^2 + 13z^2 - 5z + 7z^3 - 15z$

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62. Simplify combining like terms: $p - (p - q) - q - (q - p)$

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63. Simplify combining like terms:

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

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64. Simplify combining like terms:

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

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65. Simplify combining like terms: $\left(3y^2 + 5y - 4\right) - \left(8y - y^2 - 4\right)$

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66. Add: $3mn, \ -5mn, 8mn, \ -4mn$

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67. Add: $t - 8tz, 3tz - z, z - t$

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68. Add: $-7mn+5, 12mn-2, 9mn-8, -2mn-3$

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69. Add: $a+b-3, b-a+3, a-b+3$

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70. Add: $17x+10y-12xy-13, 18-7x-10y+8xy, 4xy$

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71. Add: $5m-7n, 3n-4m+2, 2m-3mn-5$

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72. Add: $4x^2y, -3xy^2, 5xy^2, 5x^2y$

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73. Add: $3p^2q^2 - 4pq + 5, \ -10p^2q^2, 15 + 9pq + 7p^2q^2$

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74. Add: $ab - 4a, 4b - ab, 4a - 4b$

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75. Add: $x^2 - y^2 - 1, y^2 - 1 - x^2, 1 - x^2 - y^2$

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76. Subtract: $-5y^2$ from y^2

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77. Subtract: $6xy$ from $-12xy$

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78. Subtract: $(a-b)$ from $(a+b)$

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79. Subtract: $a(b-5)$ from $b(5-a)$

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80. Subtract: $-m^2+5mn$ from $4m^2-3mn+8$

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81. Subtract: $-x^2+10x-5$ from $5x-10$

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82. Subtract: $5a^2 - 7ab + 5b^2$ from $3ab - 2a^2 - 2b^2$

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83. Subtract: $4pq - 5q^2 - 3p^2$ from $5p^2 + 3q^2 - pq$

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

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85. What should be subtracted from $2a + 8b + 10$ to get $-3a + 7b + 16$?

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

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87. From the sum of `3x-y+11 and -y-11, subtract 3x-y-11.

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88. 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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89. If m=2, find the value of : m-2

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90. If m=2, find the value of : 3m-5

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91. If m=2, find the value of : 9-5m

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92. If m=2, find the value of : $3m^2 - 2m - 7$

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93. If m=2, find the value of : $\frac{5m}{2} - 4$

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94. If p=-2 find the value of : 4p+7

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95. If p=-2 find the value of : $-3p^2+4p+7$

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96. If p=-2 find the value of : $-2p^3-3p^2+4p+7$

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97. Find the value of the following expression, when x=1 : $2x-7$

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98. Find the value of the following expressions, when x=-1: -x+2

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99. Find the value of the following expressions, when x=-1:$x^2 + 2x + 1$

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100. Find the value of the following expressions, when x=-1:$2x^2 - x - 2$

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101. If a =2, b=-2, find the value of : $a^2 + b^2$

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102. If a =2, b=-2, find the value of : $a^2 + ab + b^2$

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103. If a =2, b=-2, find the value of : $a^2 - b^2$

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104. When a=0, b=-1, find the value of the given expressions: $2a + 2b$

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105. When a=0, b=-1, find the value of the given expressions: $2a^2 + b^2 + 1$

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106. When a=0, b=-1, find the value of the given expressions: $2a^2b + 2ab^2 + ab$

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107. When a=0, b=-1, find the value of the given expressions: $a^2 + ab + 2$

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108. Simplify the expressions and find the value if x is equal to 2: $x + 7 + 4(x - 5)$

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109. Simplify the expressions and find the value if x is equal to 2: $3(x + 2) + 5x - 7$

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110. Simplify the expressions and find the value if x is equal to 2: $6x + 5(x - 2)$

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

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

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

$3x-5-x+9$

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

$2-8x+4x+4$

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

$3a + 5 - 8a + 1$

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

$10 - 3b - 4 - 5b$

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

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

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

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

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119. 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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120. Simplify the expression and find its value when a=5 and b=-3

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

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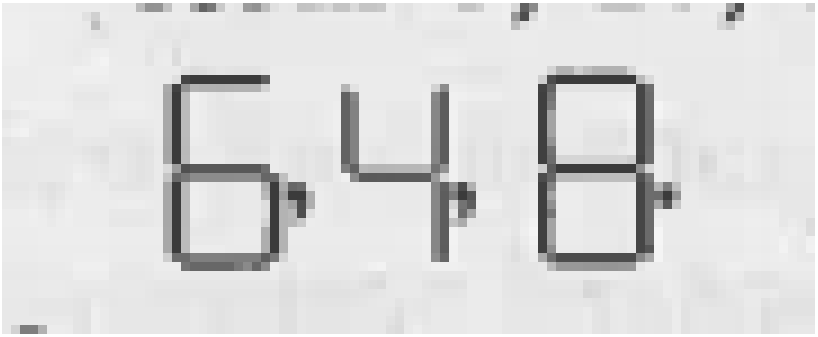
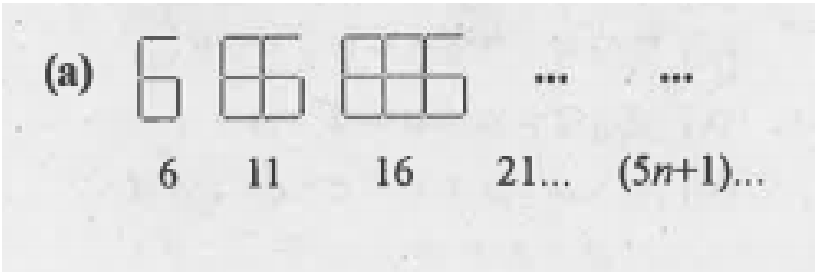
121. Observe the patterns of digits made from line segments of equal length. You will find such segmented digits on the display of electronic

watches or calculators. If the number of digits formed is taken to be n, the number of segments required to form n digits is given by the algebraic expression appearing on the right of each pattern. How many segments are required to form 5,10,100 digits of the kind





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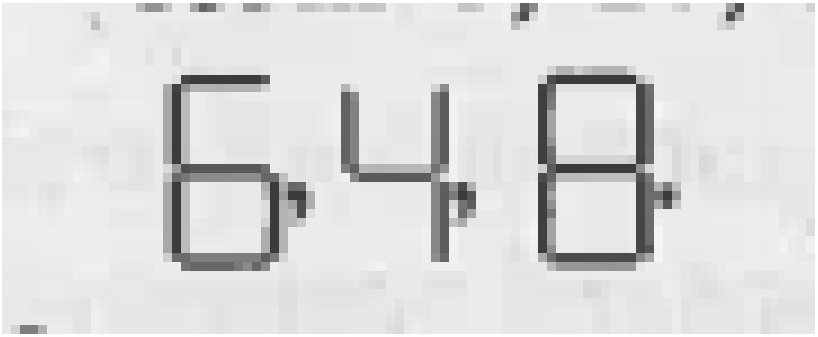

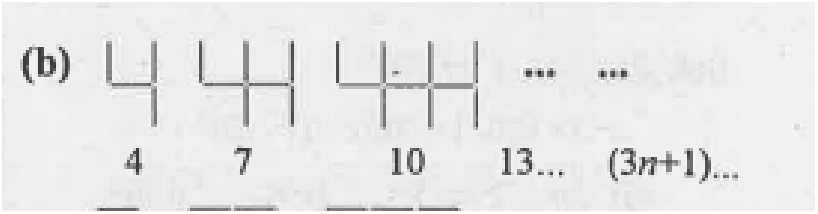

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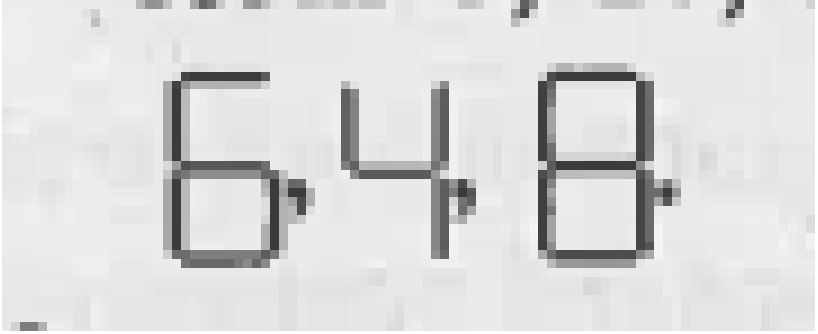

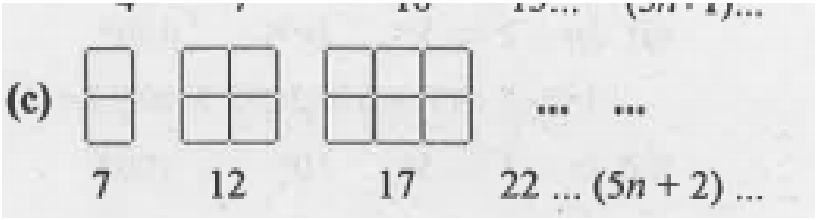

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124. Use the given algebraic expression to complete the table of number patterns.

S. No.	Expression	Terms								
		1st	2nd	3rd	4th	5th	... 10th	... 100th	...	
(i)	$2n - 1$	1	3	5	7	9	-	19	-	-
(ii)	$3n + 2$	5	8	11	14	-	-	-	-	-
(iii)	$4n + 1$	5	9	13	17	-	-	-	-	-
(iv)	$7n + 20$	27	34	41	48	-	-	-	-	-
(v)	$n^2 + 1$	2	5	10	17	-	-	-	10,001	-

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