

Class: Eight

Subject- Mathematics

Source: Photo of exercise are given below.

Work: Complete up to 9 of exercise 8.2

Do your work neatly

Creative Section - A

5. Let's look at these diagrams and write the areas in algebraic expression forms as shown in the example.

Algebraic Expressions

Area of ABCD = $x^2 + 1.x + 1.x + 1^2$
 $(x + 1)^2 = x^2 + 2x + 1$

a) Area of ABCD

b) Area of PQRS

c) Area of PREM

d) Area of ABCD

e) Area of EFGH

f) Area of PQRS

6. Let's find the area of each of these rectangles in algebraic expression forms.

a) Area of ABCD

b) Area of MNOP

c) Area of EFGH

7. a) Find the squares of (i) $2a + 1$ (ii) $x - 3y$ (iii) $a - \frac{1}{a}$ (iv) $x + \frac{1}{x}$
 b) Find the cubes of (i) $p + 2$ (ii) $2a - b$ (iii) $y + \frac{1}{y}$ (iv) $x - \frac{1}{3x}$
 c) Expand (i) $(3x - 1)^2$ (ii) $(2y + \frac{1}{2y})^2$ (iii) $(2p + q)^2$ (iv) $(3x - \frac{1}{3x})^2$
 8. a) Express (i) $x^2 + 2x + 1$ (ii) $a^2 - 4ab + 4b^2$ (iii) $9p^2 + 12pq + 4q^2$ as perfect squares.
 b) Express (i) $x^3 + 6x^2 + 12x + 8$ (ii) $8a^3 - 36a^2 + 54a - 27$ (iii) $p^3 - 9p^2q + 27pq^2 - 27q^3$ as perfect cubes.

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9. Let's find the expressions to be inserted to make these expressions perfect squares

- a) $x^2 + \dots + 16y^2$ [Hint. $x^2 + 2x \cdot 4y + (4y)^2$, so the required term is $8xy$]
 b) $x^2 + \dots + 4y^2$ c) $x^2 - \dots + 9y^2$
 d) $4x^2 + \dots + 25y^2$ e) $9a^2 - \dots + 49b^2$

10. Let's find the expressions to be inserted to make these expressions perfect cubes

- a) $x^3 + \dots + \dots + 27$ [Hint. $x^3 + 3 \cdot x^2 \cdot 3 + 3 \cdot x \cdot 3^2 + (3)^3$, so, the required expression is $9x^2 + 27x$]
 b) $a^3 + \dots + \dots + 1$ c) $x^3 + \dots + \dots + 8$
 d) $a^3 - \dots + \dots - 27$ e) $x^3 - \dots + \dots - 64y^3$

11. Let's apply the appropriate formula to find the products.

- a) $(a + 3)(a - 3)$ b) $(2x + 1)(2x - 1)$ c) $(4 + 3p)(4 - 3p)$
 d) $(2x - 3y)(2x + 3y)$ e) $(x^2 - y^2)(x^2 + y^2)$ f) $(2x^2 + 5y^2)(2x^2 - 5y^2)$
 g) $(a + b + c)(a + b - c)$ h) $(x - y + z)(x + y + z)$ i) $(p - q - r)(p + q - r)$
 j) $(x + y)(x - y)(x^2 + y^2)$ k) $(x + 2)(x - 2)(x^2 + 4)$ l) $(2a + y)(2a - y)(4a^2 + y^2)$

12. Let's find the products using the formula $(a + b)(a - b) = a^2 - b^2$.

Hint. $99 \times 101 = (100 - 1) \times (100 + 1) = 100^2 - 1^2 = 10000 - 1 = 9999$

- a) 19×21 b) 49×51 c) 78×82 d) 102×98

13. Let's find the products by using formula $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$ or $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$

- a) $(x + 2)(x^2 - 2x + 4)$ b) $(x + 3)(x^2 - 3x + 9)$ c) $(x - 1)(x^2 + x + 1)$
 d) $(y - 4)(y^2 + 4y + 16)$ e) $(2x + 3y)(4x^2 - 6xy + 9y^2)$ f) $(3a - 5b)(9a^2 + 15ab + 25b^2)$

14. a) If $(x + y) = 5$ and $xy = 3$, find the value of $x^2 + y^2$.

b) If $(a - b) = 4$ and $ab = 2$, find the value of $a^2 + b^2$.

c) If $(x + \frac{1}{x}) = 3$, find the value of $x^2 + \frac{1}{x^2}$.

d) If $(p - \frac{1}{p}) = 7$, find the value of $p^2 + \frac{1}{p^2}$.

15. a) If $a + \frac{1}{a} = 3$, find the values of (i) $a^2 + \frac{1}{a^2}$ (ii) $(a - \frac{1}{a})^2$

b) If $x + \frac{1}{x} = 5$, find the values of (i) $x^2 + \frac{1}{x^2}$ (ii) $(x - \frac{1}{x})^2$

c) If $p - \frac{1}{p} = 4$, find the values of (i) $p^2 + \frac{1}{p^2}$ (ii) $(p + \frac{1}{p})^2$

d) If $\frac{m^2 - 1}{m} = 6$, find the values of (i) $m^2 + \frac{1}{m^2}$ (ii) $(m + \frac{1}{m})^2$

16. a) If $(x + y) = 6$ and $xy = 2$, find the value of $x^2 + y^2$.

b) If $(x - y) = 5$ and $xy = 4$, find the value of $x^2 - y^2$.

c) If $(a + \frac{1}{a}) = 4$, find the value of $a^3 + \frac{1}{a^3}$.

Subject- Opt. Mathematics

8. ΔABC having the vertices A (5, 8), B (7, 6) and C (5, 7) is mapped to $\Delta A'B'C'$ such that A' is (2, 12). Write the translation T and find the coordinates of B' and C'. Graph also the object and the image.
9. Which translation maps the following?

- (a)

1

 \longrightarrow

2

- (b)

1

 \longrightarrow

3

- (c)

1

 \longrightarrow

4

- (d)

1

 \longrightarrow

5

- (e)

1

 \longrightarrow

6

- (f)

1

 \longrightarrow

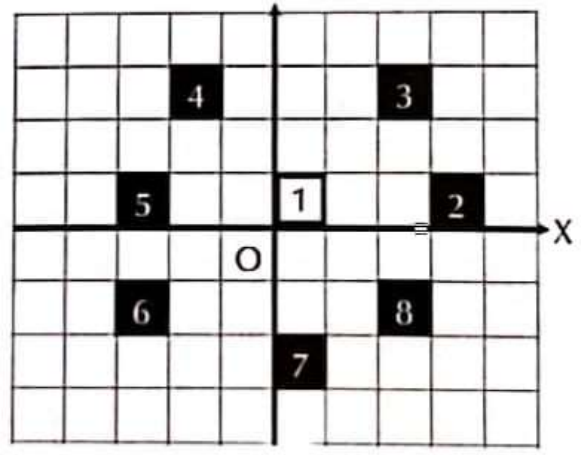
7

- (g)

1

 \longrightarrow

8



Subject-Extra Reading

Homework will be given in class.

Subject- Science

1. Why new substance is formed during the chemical reaction? Write any three examples of chemical change.
2. What is reactant? If hydrogen and oxygen are combined in the form of water, identify the reactant and product with reason.
3. What is skeleton equation? Why should we balance a chemical reaction?
4. Convert the given word equation into balanced equation.
 - a. Calcium hydroxide + Carbon dioxide \longrightarrow Calcium carbonate + Water
 - b. Potassium chlorate \longrightarrow Potassium chloride + Oxygen
 - c. Sodium carbonate + Water \longrightarrow Sodium hydroxide + Hydrogen carbonate

The End.