

**INTERNATIONAL INDIAN SCHOOL, DAMMAM**

**MIDDLE SECTION**

**ANNUAL EXAM WORKSHEET - 2024-25**

**CLASS: VIII**

**SUBJECT: MATHEMATICS**

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**CH-7 COMPARING QUANTITIES**

- The fraction  $\frac{3}{5}$  converted to percentage is  
(a) 20%      (b) 30%      (c) 40%      **(d) 60%**
- Out of 60 students in a class, 25% passed. How many students passed?  
(a) 10      **(b) 15**      (c) 30      (d) 40
- VAT is always calculated on which of the following?  
(a) Selling price      **(b) Cost price**      (c) Marked price      (d) Profit or loss
- The marked price of a book is Rs 200. The shopkeeper gives 25% discount on it. What is the selling price of the book?  
**(a) Rs. 50**      (b) Rs 150      (c) Rs 175      (d) Rs 125
- A sum of Rs 1600 at 5% p.a. compound interest amount to Rs 1764 in  
**(a) 2 years**      (b) 10 years      (c) 8 years      (d) 4 years
- Find the rate of discount given on a shirt whose selling price is ₹1092 after deducting a discount of ₹208 on its marked price. (Disc. % = 16%)
- Compute the amount and compound interest on the principal amount ₹ 10,800 for 3 years at  $12\frac{1}{2}$  % per annum compounded annually. (Amt . 15377.34. C.I. 4577.34)
- Maria invested ₹ 8,000 in a particular business. She would eventually be paid interest at 5% per annum compounded annually. Find out the C.I. and amount credited against her name, particular at the end of the second year

**II Assertion – Reasoning**

**9. Assertion (A): Mithlesh purchased a T.V. for Rs 10000 and sold it for Rs 8000 and Loss % = 20%**  
**Reasons (R) –Loss percentage refers to the amount of loss incurred which is expressed or calculated in percentage.**

- Both A and R are true and R is the correct explanation of A**
- Both A and R are true but R is not the correct explanation of A
- A is true but R is false
- A is false but R is true

**10. Vimla purchased a watch for Rs 500. She sold it at a loss of 20%. Selling price = Rs 400**  
**Reasons (R) –The amount that the buyer pays to buy the product is called the selling price**

- Both A and R are true and R is the correct explanation of A
- Both A and R are true but R is not the correct explanation of A
- A is true but R is false**
- A is false but R is true

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**Case Study**

**11.** A survey was conducted among primary school students, and were asked about how much time they spend on tuition and how much time on self-study. It was found that 90 students take tuition for 1 h to 1.5 h. The distribution of students according to time they take tuition is 30% take tuition for 1.5 h to 2 h, 20% take tuitions for 1 h to 1.5 h, 50% did not take tuition at all. *On basis of this information given in passage answer following questions.*

Q. i. How many students do self-study?

- (a) 300      **(b) 225**      (c) 375      (d) 275

Q. ii. How many students take tuitions for more than 1.5 h?

- (a) 135**      (b) 150      (c) 110      (d) 105

Q. iii. For how much time does 90 students take tuitions?

- (a) 1 hr.      (b) 1.5 hr.      (c) 2 hr.      **(d) 1 hr. to 1.5 hr.**

Q. iv. How many students were surveyed?

- (a) 450**      (b) 150      (c) 110      (d) 105

**12 .** Ali bought a tape recorder for Rs. 8000 and sold it to Bunty. Bunty in turn sold it to Siyan, each earning a profit of 20%. Now answer the following questions –

- i) How much cost, Bunty paid to buy the tape recorder? (Rs. 9600)
  - ii) Find C.P. of taper recorder for Siyan? ( Rs. 11520)
  - iii) Profit amount for Bunty? ( Rs. 1920)
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## CH-8 ALGEBRAIC EXPRESSION

Choose the correct answer:

- The value of  $a^2 + a + 2b$ , when  $a = 1$ ,  $b = -1$   
a) 4      b) 7      c) 0      d) -1
- The perimeter of a rectangle with length  $2l^2m^2$  and breadth  $3l^2m^2$  is  
a)  $6l^3m^3$       b)  $10l^2m^2$       c)  $2l^3m$       d)  $10l^2m^3$
- The volume of a cube of side  $6xyz^2$  is  
a)  $36xyz^2$       b)  $216x^3y^3z^3$       c)  $26xyz^2$       d)  $216x^3y^3z^6$
- The area of a rectangle that has length =  $2a^2b$  and breadth =  $3ab^2$  is:  
a)  $6a^3b^3$       b)  $a^3b^3$       c)  $2a^3b^3$       d)  $4a^3b^3$
- The side of a cube is  $3x$ . Find the volume of the cube.  
a)  $6x^2$       b)  $27x^3$       c)  $9x^3$       d) 27
- The sum of  $5x^2$ ,  $-7x^2$ ,  $13x^2$ ,  $11x^2$  and  $-5x^2$  is  
a)  $2x^2$       b)  $6x^2$       c)  $9x^2$       d)  $17x^2$
- The value of  $(b - c)(b + c) + (c - a)(c + a) + (a - b)(a + b)$  is:  
a)  $b + c + a$       b)  $b^2 + c^2 + a^2$       c)  $b^2 + ca + ab$       d) 0
- If we multiply  $8ab$  and  $(-12a^3b^2c)$ , then we get:  
a)  $96a^2b^2c$       b)  $96a^3bc^2$       c)  $-96a^4b^3c$       d)  $-96a^3b^3c$
- Assertion (A) – The value of  $x^2 - 2x + 1$  when  $x = 1$  is 0  
Reasons (R) – a numerical coefficient is defined as a fixed number
  - Both A and R are true, and R is the correct explanation of A
  - Both A and R are true, but R is not the correct explanation of A
  - A is true but R is false
  - A is false but R is true
- Assertion (A) – The coefficient of  $x^2y$  in  $-15x^2y$  is 15  
Reasons (R) – A coefficient is a number multiplied by a variable
  - Both A and R are true, and R is the correct explanation of A
  - Both A and R are true, but R is not the correct explanation of A
  - A is true but R is false
  - A is false but R is true

**Answer the following:**

- Subtract:  $3x^2 - 5x + 7$  from  $5x^2 - 7x + 9$
- Find the area of the rectangle whose length and breadths are  $3x^2y$  m and  $5xy^2$  m respectively.
- Simplify the following:
  - $a^2(b^2 - c^2) + b^2(c^2 - a^2) + c^2(a^2 - b^2)$
  - $x^2(x - 3y^2) - xy(y^2 - 2xy) - x(y^3 - 5x^2)$
- Multiply  $(3x^2 + 5y^2)$  by  $(5x^2 - 3y^2)$
- Multiply  $(6x^2 - 5x + 3)$  by  $(3x^2 + 7x - 3)$
- Multiply  $x^2 + 2y$  by  $x^3 - 2xy + y^3$  and find the value of the product for  $x = 1$  and  $y = -1$ .

Simplify:

$$2x^2(x + 2) - 3x(x^2 - 3) - 5x(x + 5)$$

**L-9 MENSURATION**

**Choose the correct option:**

- 1) A Cuboid has \_\_\_\_\_ pairs of identical faces.  
a) 2      b) 3      c) 4      **d) 6**
- 2) 1 litre = \_\_\_\_\_ cubic centimeters  
a) 10000      b) 100      c) 1000      d) 10
- 3) The volume of a cuboid whose length, breadth and height are  $2a$ ,  $3a$  and  $4a$  is \_\_\_\_\_.  
a)  $24a^2$       b)  $24a^3$       c)  $12a^3$       d) None of these
- 4) The height of a cylinder whose radius is  $7\text{cm}$  and the total surface area is  $880\text{ cm}^2$   
a)  $13\text{cm}$       b)  $68\text{cm}$       c)  $20\text{cm}$       d)  $22\text{cm}$
- 5) The area of a Trapezium whose parallel sides are  $12\text{ cm}$  and  $20\text{cm}$  and distance between them is  $15\text{cm}$   
a)  $240\text{ cm}^2$       b)  $24\text{cm}^2$       c)  $210\text{ cm}^2$       d)  $60\text{ cm}^2$

**Assertion and Reasoning:**

- 6) Assertion (A): If the diagonals of a rhombus are  $12\text{cm}$  and  $15\text{ cm}$ , its area will be  $54\text{cm}^2$   
Reason (R): Area of a rhombus =  $\frac{1}{2} \times$  Products of the diagonals  
(a) Both A and R are true, and R is the correct explanation of A.  
(b) Both A and R are true, but R is not the correct explanation of A.  
(c) A is true, but R is false.  
(d) A is false, but R is true.
- 7) Assertion (A) –The volume of a cylinder of base radius  $r$  and height  $h$  is  $\pi r^2 h$   
Reasons (R) –The volume of cylinder is the amount of space in it. It can be obtained by multiplying its base area by its height.  
a) Both A and R are true and R is the correct explanation of A  
b) Both A and R are true but R is not the correct explanation of A  
c) A is true but R is false  
d) A is false but R is true

**Answer the following question:**

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- 8) Find the volume of a cube, whose total surface area is  $486 \text{ cm}^3$ .
- 9) Water is pouring into a cuboidal reservoir at the rate of 90 liters per minute. If the volume of reservoir is  $216 \text{ m}^3$ , find the number of hours it will take to fill the reservoir.
- 10) A swimming pool is 40m in length, 20m in breadth and 5m in depth. Find the cost of cementing its four walls and floor at the rate of 12 per  $\text{m}^2$ .
- 11) A diagonal of a quadrilateral is 60cm long and the length of the perpendiculars on it from the opposite vertices are 14cm and 20cm. Find its area.
- 12) How many bricks will be required to build a wall of 8m long, 6m height and 22.5 cm thick, if each brick measures 25cm x 12cm x 9cm?
- 13) The diameter of a roller is 84 cm and its length is 120 cm. It takes 500 complete revolutions to move once over to level a playground. What is the area of the playground in  $\text{m}^2$ ?
- 14) A Rectangular piece of paper 22cm x 6 cm is folded without overlapping to make a cylinder of height 6cm. Find the volume of the cylinder ?

**CASE STUDY QUESTIONS:**

15) Anup after retirement thought to stay in village's house. After going there he found there was shortage of water in village, so he thought of constructing a well. He hired some labourers and guided them that well should be 7m in diameter and 20m deep.



**Based on the above information answer the following questions:**

- (i) What is the shape of the well?
- (ii) What will be the radius of the well?
- (iii) What will be the volume of the earth dug out?
- (iv) What will be the total surface area of the well?

16) In a building there are 15 cylindrical pillars. The diameter of each pillar is 42 cm and the height is 6 m. The cost of painting curved surface area is ₹ 12 per  $\text{m}^2$ .



the

- (i) Find the curved surface area of one cylindrical pillar.
- (ii) Calculate the total curved surface area of all 15 pillars.
- (iii) Find the total cost of painting the curved surface area of all 15 pillars.

CH10 EXPONENTS AND POWERS

Choose the correct answer

1. The multiplicative inverse of  $3^{-5}$  is

- (a)  $3^5$  (b)  $5^3$  (c)  $5^{-3}$  (d)  $\frac{3}{5}$

2.  $100^0 + 20^0 + 5^0$  is equal to

- (a) 125 (b) 25 (c)  $\frac{1}{125}$  (d) 3

3. What is the value of  $4^2 \times 4^{-2}$

- (a) 16 (b) 8 (c) 1 (d) 0

4. The standard form of 865000 is

- (a)  $8.65 \times 10^5$  (b)  $8.65 \times 10^3$  (c)  $8.65 \times 10^4$  (d)  $8.65 \times 10^2$

5. The usual form of  $5.07 \times 10^{-8}$  is

- (a) 507000000 (b) 50700 (c) 0.000000507 (d) 0.507

Assertion Reason

6. **Assertion:**  $2 \times 2 \times 2 \times 2 \times 2$  is equal to  $2^5$

**Reason :** The power of a number says how many times a number is multiplied by itself.

- a.) Both Assertion and Reason are correct and Reason is the correct explanation for Assertion  
b.) Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.  
c.) Assertion is true but the reason is false.  
d.) Assertion is false but the reason is true.

7. **Assertion:** The multiplicative inverse of  $10^5$  is 1.

**Reason :** The multiplicative inverse of a number is defined as a number which when multiplied by the original number gives the product as 1.

- a.) Both Assertion and Reason are correct and Reason is the correct explanation for Assertion  
b.) Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.

INTERNATIONAL INDIAN SCHOOL, DAMMAM

MIDDLE SECTION

ANNUAL EXAM WORKSHEET - 2024-25

CLASS: VIII

SUBJECT: MATHEMATICS

c.) Assertion is true but the reason is false.

d.) Assertion is false but the reason is true.

8. Simplify

(a)  $2^0 + (-9)^0 + \left(\frac{-3}{7}\right)^0 + \left(\frac{1}{2}\right)^{-1}$

(b)  $(-2)^4 \times \left(\frac{3}{2}\right)^4$

9. Find the value of x

(a)  $\left(\frac{3}{7}\right)^{-3} \times \left(\frac{3}{7}\right)^8 = \left(\frac{3}{7}\right)^{2x-5}$

(b)  $\left(\frac{2}{3}\right)^{2x} \times \left(\frac{16}{81}\right)^{3x+1} = \left(\frac{8}{27}\right)^{5x}$

10. Simplify  $\frac{343 \times t^{-9} \times 125}{35 \times t^{-11} \times 49}$

11. Express the following in standard form

(a) 0.000432 (b) 0.0000076 (c) 9280000 (d) 567.31

12. Express the following in usual form.

(a)  $9 \times 10^{-7}$  (b)  $5.91 \times 10^8$  (c)  $7.3 \times 10^{-5}$  (d)  $31.078 \times 10^6$

13. Express the result in power notation with positive exponent

$(-13)^{-2} \times \left(\frac{5}{3}\right)^{-9} \times \left(\frac{3}{5}\right)^{-7}$

14. Case Study



In a stack, there are 25 books, each having a thickness of 20 mm and 100 paper sheets, each having a thickness of 0.016 mm.

(a) Express thickness of 25 books in standard form.

(b) Express thickness of 100 papers in standard form

(c) What is the total thickness of the stack in standard form ?

Chapter -11 Direct and Inverse Proportion Worksheet

Choose the best answer:

- The proportional constant when 'P' is inversely proportional to 'Q' is
  - $P \times Q$
  - $2P \times Q$
  - $P + Q$
  - $P - Q$
- Which of the following tables shows inverse proportion?

|       |   |     |     |     |       |
|-------|---|-----|-----|-----|-------|
| (i)   | x | 6   | 12  | 30  | 48    |
|       | y | 250 | 125 | 50  | 31.25 |
| (ii)  | x | 115 | 130 | 145 | 160   |
|       | y | 615 | 600 | 585 | 570   |
| (iii) | x | 50  | 100 | 300 | 1200  |
|       | y | 300 | 150 | 100 | 75    |

- Both (i) and (ii)
  - Only ( i )
  - None of these
  - Both (ii) and (iii)
- If 'x' varies directly with square of 'y', and  $x = 4$  when  $y = 5$ , then find 'x' when y is 15.
    - 4
    - 36
    - 9
    - 12
  - If x and y are inversely proportional, then:
    - $x+y=\text{constant}$
    - $x-y=\text{constant}$
    - $xy=\text{constant}$
    - $x/y=\text{constant}$
  - If two quantities x and y are in direct proportion, then \_\_\_\_\_.
    - $x = ky$
    - $xy = k$
    - $x-y = k$
    - None of these

Answer the following questions:



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**MIDDLE SECTION**

**ANNUAL EXAM WORKSHEET - 2024-25**

**CLASS: VIII**

**SUBJECT: MATHEMATICS**

1. 6 workers can complete the job in 8 days. How many workers are needed to complete the job 2 days in advance?
2. A contractor can complete a certain piece of work in 9 days. He employed certain number of men. But 6 of them being absent from the very first day, rest could finish the work in 15 days. How many men originally employed?
3. 30 Persons can reap the field in 17 days. How many more persons to reap the field in 10 days?
4. If the thickness of 500 sheets of paper is 4 cm then what would be the thickness of 200 sheets of the same paper?
5. A car is moving at a uniform speed of 54km/hour.
  - (a) How far will it travel in 20 minutes?
  - (b) Find the time required to cover a distance of 648 km?
6. Mania types 200 words in 30 minutes. How many words she will type in 12 minutes?

**Case study Questions:**

1. Mohan starts his car journey to a certain place at 9 am and reaches the place at 1 pm, if he drives the car at a speed of 30 km/hr.

On the basis of the above information, answer the following questions.

- a) What is the time taken by Mohan to reach his destination?
  - (i) 2 hours
  - (ii) 3 hours
  - (iii) 1 hour
  - (iv) 4 hours
- b) The total distance covered by Mohan is:
  - (i) 90 km
  - (ii) 60 km
  - (iii) 30 km
  - (iv) 120 km
- c) By how much should he increase his speed so that he can reach the place by 12 noon?
  - (i) 40 km/hr
  - (ii) 20 km/hr
  - (iii) 10 km/hr
  - (iv) 30 km/hr

2. The students of Anju's class sold posters to raise money. Anju wanted to create a ratio for finding the amount of money her class would make for different numbers of posters sold. She knew they could raise Rs 250 for every 60 posters sold.

- (a) How much money would Anju's class make for selling 102 posters?
- (b) Could Anju's class raise exactly Rs 2,000? If so, how many posters would they need to sell? If not, why?

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**Assertion Reason Questions:**

1. **Assertion:** If 24 men can dig a trench in 7 days, it takes 12 days by 10 men to dig a similar trench.

**Reason:** In an inverse proportion, when one decreases other increases and vice versa.

- a) Both Assertion and Reason are correct and Reason is the correct explanation for Assertion
- b) Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.
- c) Assertion is true but the reason is false.
- d) Assertion is false but reason is true.

2. **Assertion:** If cost of 93 m of a certain kind of plastic sheet is 1395. Then the cost of 100 m is 1575.

**Reason:** In a direct proportion, when one increases other increases and vice versa.

- a) Both Assertion and Reason are correct and Reason is the correct explanation for Assertion
- b) Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.
- c) Assertion is true but the reason is false.
- d) Assertion is false but reason is true.

CH 12 FACTORISATION

1. Obtain factors of  $m^2 + 4x + 4$

- (a)  $(m + 2)(m + 2)$  (b)  $(m + 2)(m - 2)$  (c)  $(m - 1)(m + 2)$  (d)  $(m - 1)(m - 2)$

2. The common factor of  $a^4b^2$  and  $a^2b^2$  is:

- (a)  $a^2b^2$  (b)  $ab^2$  (c)  $a^4b^2$  (d)  $ab$

3. Which of the following are the factors of  $1 - x^2$ ?

- (a)  $(x + 1)(x - 1)$  (b)  $(1 - x)(1 + x)$  (c)  $(1 - x)(1 - x)$  (d)  $(1 + x)(1 + x)$ .

4. Which of the following are the factors of  $a^2 + ab + bc + ca$

- (a)  $(b + c)(c + a)$  (b)  $(a + b)(a + c)$  (c)  $a(a + b + c)$  (d)  $(a + b)(b + c)$ .

5. Factorize the expression  $p^2 - 10p + 21$ .

- (a)  $(p - 7)(p - 3)$  (b)  $(p + 7)(p - 3)$  (c)  $(p - 7)(p + 3)$  (d)  $(p + 7)(p + 3)$

6. Divide:  $81(x^2yz + xy^2z + xyz^2)$  by  $9xyz$

- (a)  $9(x^2 + y^2 + z^2)$  (b)  $(x^2yz + xy^2z + xyz^2)$  (c)  $9(x^3yz + xy^2z + xyz^2)$  (d)  $9(x + y + z)$

7. Divide as directed:  $26xy(x + 5)(y - 4) \div 13x(y - 4)$

- (a)  $2y(x + 5)$  (b)  $(x + 5)$  (c)  $2y$  (d) None of these

Assertion Reasoning

8. Assertion (A) – The factorisation of  $x^2 + xy + 2x + 2y$  is  $(x + 2)(x - y)$

Reasons (R) – The factorisation is defined as expressing or decomposing a number or an algebraic expression as a product of its prime factors or irreducible factors.

- a) Both A and R are true and R is the correct explanation of A  
b) Both A and R are true but R is not the correct explanation of A  
c) A is true but R is false  
d) A is false but R is true

ANSWER THE FOLLOWING

1. Divide  $(m^2 - 14m - 32)$  by  $(m + 2)$

2. Factorise:  $z - 1 + xy - xyz$

3. Factorise:  $100x^2 - 80xy + 16y^2$

4. Factorise:  $16x^4 - y^4$

5. Factorise:  $x^2 + 6x + 8$

6. Factorise:  $49y^2 - 1$

7. Divide:  $10(x^3y^2x^2 + x^2y^3z^2 + x^2y^2z^3)$  by  $5x^2y^2z^2$ .

8. Simplify:  $12(y^2 + 7y + 10) \div 6(y + 5)$

9. Factorize the following expressions and divide them

a)  $x^2 + 13x + 36$  by  $(x + 4)$

b)  $64(p^4 - 5p^3 - 24p^2)$  by  $8p(p - 8)$ .

10. Factorize:  $p^4 - (p + q)^4$

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## Ch-13 INTRODUCTION TO GRAPH

### Answer the Following:

- A line graph which is whole unbroken line is called a
  - Linear graph
  - pie chart
  - double bar graph
  - histogram
- Which graph displays data that changes continuously over periods of time?
  - Pie chart
  - line graph
  - double bar graph
  - histogram
- Which one is independent variable
  - Number of liters of petrol
  - cost of petrol
- Which variable is called as **control variable**?
- Make a line graph for the area of the square as per the given table. Is it linear graph?

|                            |   |   |   |    |
|----------------------------|---|---|---|----|
| Side (in cm)               | 1 | 2 | 3 | 4  |
| Area (in cm <sup>2</sup> ) | 1 | 4 | 9 | 16 |

- The following table gives as a growth chart of a child. Draw the line graph for the table and answer the following questions

|                |    |    |     |     |     |
|----------------|----|----|-----|-----|-----|
| Height (in cm) | 75 | 90 | 110 | 120 | 130 |
| Age (in Years) | 2  | 4  | 6   | 8   | 10  |

- What is the height at the age of 5 years?
  - How much taller was the child at the age of than at the age of 6?
- For fixing point on the graph sheet we need \_\_\_\_\_
  - The relation between \_\_\_\_\_ and \_\_\_\_\_ is shown through a graph.

**CASE STUDY**

9. The given line graph shows the annual sales of car for past six years. on basis of given information in graph answer the following questions:



On the basis of above information answer the following questions:

Q. 1. What was the sale of car in year 2015?

- (a) 15000 (b) 16000 (c) 18000 (d) 19000

Q. 2. How many cars are sold between 2013 and 2012?

- (a) 3000 (b) 5000 (c) 6000 (d) 8000

Q. 3. In which year sale is maximum?

- (a) 2014 (b) 2017 (c) 2015 (d) 2016

Q. 4. In which year the sales of car depreciated and by how much?

- (a) 2014 (b) 2017 (c) 2015 (d) 2016

**ASSERTION AND REASONING**

10. ASSERTION: A line graph displays the data that changes continuously over the period of time.

REASONING: Whole broken line in a line graph is called as a linear graph

- (a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.