

15. A rational number $\frac{p}{q}$ is said to be in standard form if
 a) q is positive b) HCF of p and q is 1 c) both (i) and (ii) d) none of these
16. Between two consecutive integers how many rational numbers are found
 a) one b) two c) infinitely many d) none of these
17. $\frac{p}{s} = \frac{x}{y}$ if
 a) $p = y$ b) $s = x$ c) $p \times y = s \times x$ d) none of these
18. When $\frac{3}{5}$ is written as a rational number with denominator 45 then the numerator is
 a)15 b)25 c)27 d)33
19. Every rational number is
 a)an integer b) a fraction c) a natural number d) None of these
20. On a number line the length of the line segment joining 3 and -3 is ----units
 (a) 6 b) 3 c) -3 d) 0
21. On a number line which of the following number lies to the right of 5 ?
 a) 0 b) $-\frac{1}{2}$ c) $\frac{15}{7}$ d) $\frac{11}{2}$
22. Express $\frac{3}{5}$ as rational number with numerator -21.
23. Find the value of x if: $\frac{23}{x} = \frac{2}{-8}$.
24. What is the multiplicative identity element in the set of whole number?
25. What is the standard form of $\frac{44}{-77}$?
26. Reciprocal of $\frac{-3}{4}$ is _____.
27. If x less than zero, then the absolute value of x is _____
28. Which is a fraction? $-\frac{1}{2}$ or $\frac{1}{2}$

SECTION – B (2 Marks)

1. Which one is greater ? $\frac{-2}{5}$ or $\frac{-1}{3}$
2. Write down the rational numbers in the form $\frac{p}{q}$ whose numerators and denominators are $(-5) \times 4$ and $(-5) + 4$ respectively.
3. Find three rational numbers between 1 and 2.
4. Find three equivalent rational numbers of $\frac{2}{5}$.
5. Fill in the blanks $\frac{-7}{9} = \frac{14}{27} = \frac{\quad}{\quad}$.

6. Represent the rational number on the number line: $5\frac{1}{3}$
7. Compare $\frac{4}{9}$ and $\frac{3}{7}$.
8. Find x such that the two rational numbers, $\frac{8}{7}$ and $\frac{x}{-35}$ become equivalent.
9. The sum of two rational numbers is -5. If one of the number is $\frac{2}{3}$, find the other
10. Represent $\frac{3}{5}$ and $\frac{-13}{3}$ on number line
11. Insert two rational numbers between $\frac{3}{4}$ and $-\frac{9}{8}$
12. Find a rational number between $\frac{1}{4}$ and $\frac{-3}{4}$.
13. Represent $\frac{-29}{4}$ on number line.
14. Fill in the blanks: $\frac{104}{-} = \frac{-4}{9} = \frac{-100}{-}$
15. Write the rational numbers in standard form
(i) $\frac{15}{-40}$ (ii) $\frac{-27}{-243}$
16. Express $\frac{-21}{49}$ as a rational no. with denominator 7.
17. Find x such that the rational numbers in $\frac{15}{x}$ and $\frac{-3}{8}$ are equivalent
18. Arrange the following rational numbers in descending order: $\frac{4}{9}$, $\frac{-5}{6}$, $\frac{-7}{-12}$, $\frac{11}{-24}$
19. Compare the rational numbers: (i) $\frac{-4}{7}$, $\frac{5}{-9}$ (ii) $\frac{6}{7}$, $\frac{-54}{-63}$
20. Write the following rational numbers in standard form: $\frac{64}{-20}$, $\frac{-27}{-15}$
21. On a number line, what is the length of the line- segment joining, (i) $\frac{1}{2}$ and $\frac{-1}{2}$ (ii) 5 and -3

SECTION – C (3 Marks)

1. Represent $\frac{1}{5}$; $\frac{-3}{5}$; $\frac{7}{5}$ on the same number line.
2. Find 'x' if $\frac{2}{7} = \frac{4}{x}$.
3. On a number line what is the length between $\frac{-1}{5}$ and $-2\frac{1}{5}$.
4. Compare the pair of rational numbers $|\frac{-8}{7}|$ and $|\frac{8}{5}|$.
5. Which one is greatest out of $\frac{2}{5}$; $\frac{-5}{5}$; $\frac{7}{5}$.
6. Arrange the following in ascending order:
 $\frac{4}{7}$, $\frac{5}{9}$, $\frac{2}{5}$, $\frac{1}{3}$
7. Arrange the following rational number in descending order.
(i) $-\frac{3}{10}$, $-\frac{7}{5}$, $\frac{9}{-15}$, $\frac{18}{30}$
(ii) $-\frac{3}{4}$, $-\frac{5}{-12}$, $-\frac{7}{16}$, $\frac{3}{2}$
8. (a) Find the missing number:- $\frac{105}{-} = \frac{-}{-99} = \frac{-5}{-11}$
(b) Compare $\therefore \frac{-5}{7}$ and $\frac{9}{-13}$

9. Find any three rational numbers between $\frac{-2}{3}$ and $\frac{1}{2}$.
10. Represent the following on the number line.
 a) $\frac{2}{3}$ b) $-\frac{25}{6}$
11. Express $-\frac{4}{7}$ as a rational number with ; (i) numerators 12 (ii) denominator 42
12. Find the reciprocal of $\frac{-2}{3} \times \frac{5}{7} + \frac{2}{9} \div \frac{1}{3} \times \frac{6}{7}$
13. Arrange the rational numbers in descending order $\frac{-6}{5}$; $\frac{2}{-3}$; $\frac{7}{10}$; $\frac{8}{15}$
14. Arrange the rational numbers in ascending order $\frac{-16}{15}$; $\frac{-12}{-30}$; $\frac{7}{10}$; $\frac{6}{15}$.

SECTION – D(4Marks)

1. Find five rational numbers between $\frac{-1}{3}$ and $\frac{1}{2}$.
2. For $x = \frac{3}{4}$ and $y = \frac{-9}{8}$, insert a rational number between $(x - y)^{-1}$ and $(x^{-1} - y^{-1})$
3. Express $\frac{-24}{50}$ as a rational number with
 i) Numerator 12 ii) Denominator 100 iii) Numerator -72 iv) Denominator -75
4. Check whether the following are equivalent rational numbers or not.
 i) $\frac{4}{9}$ and $\frac{16}{27}$ ii) $\frac{-3}{5}$ and $\frac{18}{-30}$
5. (i) Compare the rational numbers $\frac{-4}{-9}$ and $\frac{5}{-6}$
 (ii) On number line what is the length of line segment joining $\frac{1}{2}$ and $-\frac{1}{2}$?
 (iii) Express $\frac{-4}{7}$ as a rational number with a) denominator – 28 b) numerator -36
6. a) Express $\frac{90}{216}$ as a rational number with numerator 5
 b) Find x such that the rational numbers $\frac{x}{6}$ and -13 become equivalent.
7. (i) Express $\frac{-5}{18}$ as a rational number with
 a) Denominator (-54)
 b) Numerator 20
 (ii) Find X such that $\frac{-4}{9} = \frac{x}{-81}$
8. Arrange the following in ascending order: $\frac{-7}{10}$, $\frac{8}{-15}$, $-\frac{19}{30}$, $\frac{-2}{-5}$
9. a) Arrange $\frac{4}{7}$, $\frac{5}{9}$, $\frac{2}{5}$ in ascending order.
 b) Fill in the blanks
 $\frac{36}{\text{----}} = -\frac{4}{9} = \frac{84}{\text{-----}}$
10. a) Express $\frac{90}{216}$ as a rational number with numerator 5.
 b) Find x such that the rational numbers $\frac{x}{6}$ and -13 become equivalent.

11. a) Arrange the following rational numbers in descending order .

$$\frac{-4}{9}, \frac{5}{-12}, \frac{7}{-18}, \frac{2}{-3}$$

b) Find the value of ' X ' such that the rational numbers $\frac{-5}{7}$ and $\frac{X}{28}$ are equivalent

12. Find equivalent forms of the rational numbers having a common denominator

$$\frac{5}{12}, \frac{7}{4}, \frac{9}{60}, \frac{11}{3}$$

13. (a) Find the average of the rational numbers $\frac{4}{5}, \frac{2}{3}, \frac{5}{6}$

(b) Compare : $\frac{4}{-3}$ and $1\frac{8}{5}$

CHAPTER-2 (OPERATIONS ON RATIONAL NUMBERS)

SECTION – A (1 Marks)

Q.1. Addition is associative for

- a) Natural numbers b) Whole Numbers
c) Rational Numbers d) All of these

2. The additive inverse of a negative number is _____

- a)0 b) Positive c) Negative d)none of these

3. A rational number $\frac{a}{b}$ is greater than $\frac{c}{d}$ if

- a)ad > bc b) ad < bc c) ad = bc d) ad ≠ bc

4. Between any two distinct rational numbers there exist

- a) Finite number rational numbers b) Infinitely many rational numbers
c) No rational number d) none of the above

5. Zero has _____ reciprocal.

- a) 1 b) 2 c) 3 d) no

6. Reciprocal of $2\frac{1}{3}$ is

- a) $3\frac{1}{2}$ b) $\frac{3}{7}$ c) $\frac{6}{14}$ d) $\frac{5}{3}$

7. Which is the identity element of addition?

- a) 1 b) 0 c) 10 d) 5

8. Which is the identity element under multiplication?

- a) 1 b) 0 c) 10 d) 5

9. Which integer has no reciprocal?

- a) 1 b) 0 c) 10 d) 5

10. Which is the additive inverse of -6 ?

- a) - 1 b) 0 c) 6 d) None of these

11. The multiplicative inverse of $\frac{-3}{4}$ is

- a) $\frac{3}{4}$ b) $\frac{4}{3}$ c) $\frac{-4}{3}$ d) None of these

12. $(-5\frac{1}{3}) \times \dots = 1$

- a) $-3\frac{1}{5}$ b) $\frac{-3}{16}$ c) $\frac{-16}{3}$ d) None of these

13. $\frac{-1}{16} \times \underline{\hspace{2cm}} = 1$

- a) -16 b) 16 c) 8 d) -8

14. The reciprocal of : $\frac{-4}{3} \times \frac{-5}{4}$ is

- a) $-\frac{5}{3}$ b) $\frac{5}{3}$ c) $\frac{-3}{5}$ d) None of these

15. Reciprocal of negative rational number is

- (a) Positive (b) Zero (c) Negative (d) None of these

16. The reciprocal of $\frac{-4}{3}$ is

- (a) $\frac{-3}{4}$ (b) $\frac{4}{3}$ (c) $\frac{4}{-3}$ (d) $\frac{-3}{-4}$

17. $1 \div \frac{1}{3} = \underline{\hspace{1cm}}$

- a) 3 b) 2 c) 1 d) None of these

18. Choose the correct answer: If the product of two non-zero numbers is 1, then they are

- (a) Additive inverse of each other (b) multiplicative inverse of each other.

- (c) Reciprocal of each other (d) both (b) and (c)

19. Find $\frac{3}{5} - \frac{13}{5} = \underline{\hspace{2cm}}$

20. Find $\frac{7}{9} + [-\frac{12}{9}] = \underline{\hspace{2cm}}$

21. Find. $\frac{5}{9} + [-\frac{17}{9}] = \underline{\hspace{2cm}}$

22. $\frac{4}{-11} + \frac{7}{11} = \underline{\hspace{2cm}}$

23. $\frac{3}{8} + [-\frac{5}{12}] = \underline{\hspace{2cm}}$

SECTION – B (2 Marks)

1. The sum of two rational numbers is $\frac{-1}{2}$. If one of the numbers is $\frac{5}{6}$, find the other.

2. What number should be subtracted from $\frac{-2}{3}$ to get $\frac{-1}{2}$?

3. Product of two rational numbers is $\frac{32}{9}$. If one of the numbers is $\frac{-8}{3}$, find the other.

4. Divide the sum of $2\frac{1}{4}$ and $5\frac{1}{5}$ by the product of $2\frac{1}{4}$ and $\frac{2}{3}$.

5. By what number should $\frac{-15}{56}$ be divided to get $\frac{-5}{7}$.

6. The sum of two rational numbers is 1. If one of the number is $-\frac{3}{7}$. Find the other.

7. Find the two rational numbers between $\frac{1}{4}$ and $\frac{3}{4}$

8. Subtract $\frac{2}{-9}$ from $\frac{7}{6}$.

9. Find the reciprocal of $\frac{-2}{3} \times \frac{5}{7} + \frac{2}{9} \div \frac{1}{3} \times \frac{6}{7}$

10. Verify that $(X \times y)^{-1} = (x^{-1}) \times (y^{-1})$ by taking $x = \frac{1}{2}$ and $y = \frac{1}{2}$

11. With what number should we divide $\frac{-3}{7}$, so that the quotient be $\frac{21}{5}$?

12. Subtract $-1/9$ from $3/5$.

13. The sum of two rational numbers is $\frac{-5}{7}$. If one of them is $\frac{-2}{5}$, find the other.

14. The sum of two rational number is -5 . If one of the number is $\frac{2}{3}$. Find the other number ?

15. Find the value of $\frac{3}{5} + \frac{5}{4} + \frac{-1}{14} + \frac{-3}{8}$

16. Simplify and express the result in standard form.

$$\frac{-4}{3} + \frac{3}{5} - \frac{2}{10}$$

17. The sum of two rational numbers is 1. If one of the number is $\frac{-3}{7}$. Find the other.

18. From a rope of the length 40 metres. A man cuts some equal sized pieces. How many pieces can be cut if each piece is of $\frac{4}{9}$ metres length ?

19. By what number should $\frac{-33}{16}$ be divided to get $\frac{-11}{4}$?

20. Divide the sum of $\frac{5}{21}$ and $\frac{4}{7}$ by their difference.

21. Evaluate

i) $\frac{7}{24} - \frac{-19}{36} =$ _____ ii) $\frac{-5}{-8} - \frac{3}{4}$

22. What should be added to $(\frac{-13}{4} + \frac{-3}{8})$ to get 1 ?

23. Simplify: -i) $\frac{7}{18} \times (-4)$ ii) $-36 \div (\frac{-5}{9})$

24. By what rational number should $\frac{-8}{15}$ be multiplied to get 24.

SECTION – C (3 Marks)

1. Find the product of $-5/7$ and its reciprocal.

2. Verify $(X+Y)+Z=X+(Y+Z)$ for $X= 2/5$, $Y=3/4$ and $Z=1/4$.

3. Verify $(X-Y)-Z \neq X-(Y-Z)$ for $X= 1/5$, $Y=-3/5$ and $Z=2/5$.

4. Verify $(X+Y) \div Z = X \div Y + X \div Z$ for $X= 1/3$, $Y=-3/4$ and $Z=2/5$.

5. A tin holds $16\frac{1}{2}$ litres of oil. How many such tins will be required to hold $313\frac{1}{2}$ litres of oil?
6. Show that $\frac{3}{5} \left(-\frac{1}{7} - \frac{5}{14} \right) = \frac{3}{5} \times \frac{-1}{7} - \frac{3}{5} \times \frac{5}{14}$
7. Divide the difference of $\frac{12}{5}$ and $\frac{-16}{20}$ by their product.
8. Verify $x + y = y + x$ by taking $x = \frac{5}{7}$ and $y = \frac{-3}{2}$
9. For $x = \frac{-5}{11}$ & $y = \frac{7}{3}$, Verify that $(x \div y)^{-1} = x^{-1} \div y^{-1}$
10. Simplify and express the result as a rational number in its lowest term .
 $\frac{2}{5} - \frac{1}{4} + (8.1 \times 2.7) \div 0.09$
11. Simplify: $\frac{-4}{8} + \frac{7}{13} + 9$
12. Verify: $\frac{3}{5} \times \left(\frac{-1}{7} - \frac{5}{14} \right) = \left(\frac{3}{5} \times \frac{-1}{7} \right) - \left(\frac{3}{5} \times \frac{5}{14} \right)$
13. Divide the sum of $\frac{5}{21}$ and $\frac{4}{7}$ by their difference.
14. For $x = \frac{3}{4}$ and $y = \frac{-9}{8}$, insert a rational number between $(x - y)^{-1}$ and $x^{-1} - y^{-1}$.
15. Find the value of $x - y$ and $y - x$ for $x = \frac{2}{3}$ and $y = \frac{5}{9}$. Are they same?
16. Simplify and express the result in standard form. $-4 \times \left(\frac{7}{3} - \frac{5}{6} \right)$
17. The cost of $2\frac{1}{2}$ m of cloth is Rs $78\frac{3}{4}$. Find the cost of cloth per metre.
18. How many pieces each of length $3\frac{3}{4}$ m, can be cut from a rope of length 30 metres?
19. By what rational number should $\frac{-8}{39}$ be multiplied to obtain $\frac{5}{26}$?
20. Show that $\frac{3}{5} \times \left(\frac{-1}{7} - \frac{5}{14} \right) = \left(\frac{3}{5} \times \frac{-1}{7} \right) - \left(\frac{3}{5} \times \frac{5}{14} \right)$
21. Verify that $(x - y)^{-1} \neq x^{-1} - y^{-1}$ by taking $x = \frac{-2}{7}$, $y = \frac{4}{7}$

SECTION – D (4 Marks)

1. Raju earns Rs16000 per month. He spends $\frac{1}{4}$ of his income on food; $\frac{3}{10}$ of the remainder on house rent and $\frac{5}{21}$ of the remainder on education of children. How much money is still left with him?
2. Simplify: $(-3/7) \times 6/5 + (1/10) \times 3/2 - (6/5) \times (1/14)$
3. If $6/7 \times (-3/13) + (3/26) - (3/13) \times (8/7) = (3/26) - (m) \times 2$, then what is the value of m?
4. If $x = 2/3$, $y = 4/5$, $z = 3/4$ show that $x \div (y + z) \neq (x \div y) + (x \div z)$.

5. Simplify and Express the result in a lowest form.

$$\frac{2}{5} \times \frac{3}{4} + \frac{1}{25} \times \frac{1}{2} - \frac{2}{10} \times \frac{1}{5}$$

6.(a) The product of two numbers is $-\frac{25}{16}$, One number is $-\frac{5}{4}$, Find the other number.

(b) Find reciprocal of $\frac{2}{5} \times \frac{5}{7}$

7. By taking $x = \frac{-2}{3}$, $y = \frac{5}{9}$, $z = \frac{-1}{6}$, verify that $(x + y) \div z = (x \div z) + (y \div z)$

8. By taking $X = \frac{-3}{5}$, $Y = \frac{7}{10}$, $Z = \frac{-7}{4}$

Prove that $X \times (Y + Z) = X \times Y + X \times Z$

9. If 24 pairs of trousers of equal size can be prepared with 54 m of cloth, what length of cloth is required for each pair of trousers?

10. A car is moving at average speed of $36\frac{4}{5}$ Km per hour. What distance will it cover in $7\frac{1}{2}$ hour?

11. The product of two rational numbers is -9, If one of the number is -12. Find the other.

12. By taking $x = -\frac{5}{8}$, $y = \frac{2}{7}$, $z = -\frac{1}{4}$, verify that $x \div (y - z) \neq (x \div y) - (x \div z)$

CHAPTER-3 (RATIONAL NUMBERS AS DECIMALS)

SECTION – A (1 Marks)

1) $6.4/0.2 =$ _____

- a) 3.2 b) 0.32 c) 32 d) 2.3

2) $\frac{7}{800}$ has _____ decimal representation.

- a) terminating b) non-terminating c) both a and b d) none of these

3) The decimal representation of $\frac{1}{3}$ is

- a) 0.3 b) 0.3 c) 3.33 d) none of these

4. Which is the decimal form of $7/20$

- a) 0.035 b) 0.35 c) 35 d) 3.5

5. Divide $62.5 \div 0.5$

- a) 125 b) 1.25 c) 12.5 d) 0.125

6. Convert $8/5$ in its decimal form.

7. Convert $25/7$ into decimal form.

8. Convert 2.4 in the form of p/q.

9. $2.12\overline{53}$ can be expressed as

- a) 2.125553..... b) 2.125333..... c) 2.125353..... d) None of these

10. $140 \times 0.75 \times 0.01 = ?$

- a) 140.7500 b) 14000.75 c) 1.05 d) none of these

11. Simplify $5 \times 0.16 - 0.52 + 8.263$.

12. Without actual division, determine whether the rational number $\frac{29}{250}$ has either terminating or non-terminating decimal.

13. Evaluate: $42.7 - 11 - 9.025 + 2.16$.

14. Add : 3.009, 2.59, 16.745 and 0.12 .

15. Divide : $32.768 \div 8$.

16. Convert $\frac{129}{25}$ as decimal.

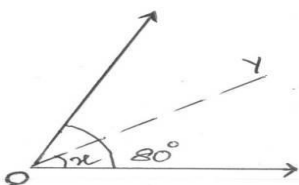
17. Simplify: $3.125 \div 0.125 + 0.50$

18. Convert $\frac{9}{16}$ as a decimal .

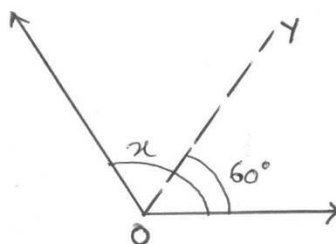
19. Find whether decimal representation $\frac{31}{15}$ is terminating or non – terminating . Give reason .

20. Write two English alphabet having (i) 1 line of symmetry (ii) no line of symmetry

21. i.



ii



If lines OY represent the line of symmetry of the angles , find X .

22. i) Find the product 0.111×0.005 ii) Express -2.56 in the form p/q

23. Without actual division, determine $\frac{99}{800}$ has a terminating decimal representation.

24. Convert $\frac{27}{7}$ into decimal.

25. Express 0.036 as rational number in standard form.

26. Express 3908.78 in the standard form?

SECTION – B (2 Marks)

1. Find the decimal representation of the following rational numbers.

(i) $\frac{-37}{5}$ (ii) $\frac{18}{125}$

2. Add $16.1+12.05+7.201$

3. Subtract 15.012 from 37.01

4. Multiply 2.2 by 3.5

5. Divide 42.042 by 6

6. Simplify $5 \times 0.16 - 0.52 + 8.263$.

7. Evaluate: $42.7-11-9.025+2.16$

8. Add : 3.009, 2.59, 16.745 and 0.12

9. Divide : $32.768 \div 8$

10. A car covers a distance of 89.1 km in 2.2 hours. What is the average distance covered by the car in 1 hour ?

11. Evaluate $:\frac{2}{5} - \frac{1}{4} + (8.1 \times 2.7) \div 0.09$

12. Compute the following (i) $(75.05 \div 0.05) \times 0.001 + 2.351$

SECTION – C (3 Marks)

1. Find: a. $53.7 \div 3$ b. $25.6 \div 8$ c. $82.44 \div 6$

2. Evaluate the following: (i) $24.12+1.2-0.001$ (ii) $5 \times 15+5 \times 1.5-0.25 \times 8$

3. Without actual division, determine which of the following rational numbers have a terminating decimal representation ?

(i) $27/125$

(ii) $25/28$

(iii) $8/50$

4. Add: $3.005;0.539;15.214$

5. Simplify and express the result in decimal: $\frac{6}{5} + \frac{1}{2} + 16$

6. Simplify the following expression

$42.7- 11- 9.025 + 2.16$

7. Simplify: $\frac{0.144 \div 1.2}{0.016 \div 0.02} + \frac{7}{5} - \frac{21}{8}$

8. $44 \times (144 \div 12) - 0.225 + 3.276$

9. Simplify the following expression .

$(75.05 \div 0.05) \times 0.001 + 2.351$

10. Evaluate $(16.9+3.2) - (12.03 - 7.8)$

11. Simplify the following expression : $-2.5 + 8.639 - 2.89 + 8.49$

12. Simplify and express the result in standard form :-

$$\left(\frac{3}{8} - \frac{7}{40} \right) \div \frac{2}{40}$$

13. Simplify and express the result as a rational number in its lowest form : $\frac{1}{4} + 1.25 \div 0.05 - \frac{1}{5}$

14. Simplify: $\frac{1}{2} + \frac{1}{5} + 6.25 \div 0.25$

15. Rama planted $\frac{1}{2}$ of his field by mango trees, $\frac{1}{4}$ of his field by guava trees and $\frac{1}{8}$ of his field banana plants and the rest by rose plants. What part of the field is planted with rose plants ? Express it as a decimal number also.
What value do you depict from this ? (any two points)

16. Simplify : $(156.25 \div 0.025) \times 0.02 - 5.2$

SECTION – D (4 Marks)

1. Mrs. Sunita uses 3.204 litres of oil to make 9 dishes of equal proportion. How much oil was used for each dish?

2. Simplify $\frac{0.4 \times 0.04 \times 0.005}{0.1 \times 10 \times 0.001} - \frac{1}{2} + \frac{1}{5}$

3. Simplify and express the result as rational number in its lowest form

$$4.125 \div 5 + 1.175 - 0.50$$

4. Simplify: $(85.05 \div 0.05) \times 1000 + 2.335$

5. Simplify: $3.2 + 5.42 - 26.002 - 1.42 + 25 \times 0.4$

6. Simplify and express in its lowest form: $\frac{0.144 \div 1.2}{0.016 \div 0.02} - \frac{3}{8}$

7. Simplify and express the result as a rational number in its lowest terms

$$\frac{2}{5} - \frac{1}{8} + (8.1 \times 2.7) \div 0.091$$

8. Simplify $(156.25 \div 0.025) \times 0.02 - 5.2$

9. Simplify & express the result as $\frac{\square}{\square}$ form: $(0.4 \times 0.04 \times 0.005) \div (0.1 \times 10 \times 0.001) - \frac{\square}{\square} + \frac{\square}{\square}$

10. Convert $\frac{1}{3}$ into decimal form.

11. Simplify and express in its lowest form

$$\frac{0.144 \div 1.2}{0.016 \div 0.02} - \frac{3}{8}$$

12. Simplify and express the result as a rational in its lowest form .

$$\frac{0.4 \times 0.04 \times 0.005}{0.1 \times 10 \times 0.001}$$

13. Simplify: $\frac{0.4 \times 0.004 \times 0.005}{0.1 \times 10 \times 0.001} - \frac{1}{2} + \frac{1}{5}$

14. Simplify and express the result as a rational number in its lowest terms

$$2/5 - 1/8 + (8.1 \times 2.7) \div 0.09$$

15. Simplify the following expressions.

a) $-5.7 + 13.20 - 15.009 + 0.02$

b) $\frac{2}{5} \times \frac{3}{4} + \frac{1}{25} \times \frac{1}{2} - \frac{2}{10} \times \frac{1}{5}$

CHAPTER-6 (ALGEBRAIC EXPRESSION)

SECTION – A (1 MARKS)

- The value which satisfies an equation is called its _____.
- A combination of constants and variables connected by the signs of the fundamental operations is called _____.
- Any expression with one or more terms is called a _____.
- _____ should be subtracted from $3x^3 - 1$ to get x^3
- $4xy + 2xy$ is a _____ .(Binomial, Trinomial, Monomial)
- Find the area of a rectangle whose sides are $2a$ and $3a$.
(a) $6a$ sq unit (b) $5a^2$ sq unit (c) $3a^2$ sq unit (d) $6a^2$ sq unit
- $x(y - z) + y(z - x) + z(x - y)$ is equal to
(a) xyz (b) 0 (c) $x+y+z$ (d) None
- If a letter has no coefficient written before it, the coefficient _____ is understood.
a) 0 b) 1 c) -1 d) none of these
- The H.C.F of $9x^3y$ & $18x^2y^3$ is
a) $3x^2y$ b) $9xy^2$ c) $9x^2y^2$ d) $9x^2y$
- In $xyz - 1$ how many terms are there
a) 1 b) 4 c) 2 d) 3
- With what number should we divide $\frac{-3}{7}$, so that the quotient be $\frac{21}{5}$.
- If $m=2$, then the value of $9-5m$ is
a) 0 b) 1 c) -1 d) 2

13. $x^2 - y^2$ is same as

a) $y^2 - x^2$

b) $x^2 + y^2$

c) $-(y^2 - x^2)$

d) None of these

14. Value of "p" if the expression $z^2 + 3z - p = 3$ for $z=2$ is _____

15. $(3p^2 - 14pq + 2r) - (14pq + 3p^2 + 2r^2)$ is a –

16. The H.C.F of the terms of the expression $18x^3y^2 + 36xy^4 - 24x^2y^2$ is 5. In $xyz - 1$ how many terms are there.

17. With what number should we divide $\frac{-3}{7}$, so that the quotient be $\frac{21}{5}$.

18. What is the coefficient of y^2 in $-\frac{5}{3}\square^2$?

19. The sum of two consecutive whole numbers is 43. What is the smaller number?

20. How much is $-2\square^2 + x + 1$ less than $\square^2 + 2x - 3$?

21. The product of the coefficients of x^2 in $-\frac{4}{3}a\square^2 + \frac{1}{4}b\square^2 + 3c\square^2$ is _____?

22. Find the H.C.F of $21\square^2\square^7$ and $35\square^5\square^5$.

23. What is the degree of $3x + 2$?

24. In $xyz - 1$ how many terms are there?

25. The co-efficient of y^2 in $-35\square^3\square^2$

(i) -35

(ii) $-35\square^3$

(iii) $-35\square^2\square^2$

(iv) $-35\square^3y$

SECTION -B (2 MARKS)

1. Simplify $-6x^2(xy + 2y^2) - 3y^2(2x^2 + y)$.

2. Factorise : $1 + x + xy + x^2y$

3. Multiply : $(9a^2b) \times (-\frac{2}{3}ab^2) \times (-5bc^2)$

4. Find the product of $(\frac{2}{5}a + \frac{1}{7}b)(3a + 4b - 2)$

5. Factorise : $1 + x + xy + x^2y$

6. Find the sum of $2x^2 - 3y^2$; $9x^2 + 6y^2$; $-3x^2 - 5y^2$.

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

8. Find the product of $12x^2y^3z^6$ and $-3x^5y^2z$.

9. Find the product of $(2a+3b)$ and $(-3a+4b)$

10. Find the H.C.F of $14a^2b^3c^5$ and $21a^3b^3c^2$.

11. Find the product : $(\frac{5}{4}\square^2 - \frac{3}{2}\square\square)(1 + \square + \square^2)$.

12. Find the area of a rectangle whose sides are '2p' and 'r'.

13. What should be subtracted from $4\square^2 - 3\square + \square^2$ to get $2\square^2 - 5\square$.

14. Add : $-4x + 3y - 5z$ and $-y - 3x + 2z$.

15. Find the area of a rectangle whose breadth is b and length is square of breadth.
16. Subtract $x^2 - x + 1$ from $2x^2 + x - 1$
17. Factorise; $-\square^2\square - \square\square$
18. Factorise: $-(y-x)a+(x-y)b$
19. Factorise: $-(2\square^2+5x)$
20. Factorise: $-\square^2\square^3 - \square^3\square^2$
21. Factorise: $9\square^2-27\square\square^2$
22. Factorise: $1 + x + xy + x^2y$
23. Find the HCF and factorise $8y^3 + 8x^3$.
24. Simplify: $-6x^2(xy + 2y^2) - 3y^2(2x^2 + y)$.
25. Factorise : $1 + x + xy + x^2y$.
26. Multiply : $(9a^2b) \times (-\frac{2}{5}ab^2) \times (-5bc^2)$.
27. Find the product of $(\frac{2}{5}a + \frac{1}{7}b)(3a + 4b - 2)$
28. Factorise : $1 + x + xy + x^2y$.
29. What should be added to $xy + yz + zx$ to get $-xy - yz - zx$.
30. Find the product of $(5\square^2\square) \times (-\frac{3}{5}\square^2\square) \times (2\square\square^2)$. Also verify the result for $x = 1, y = -1$ and $z = 2$
31. Find the area of a rectangle whose breadth is b and length is square of breadth .
32. Simplify $\square^2(2\square\square + \square^3) - 2\square^2(\square^2\square + 5)$.
33. Simplify $(\square^2 - \square^2)(\square^2 - \square^2) - (\square^2 + \square^2)(\square^2 + \square^2)$.
34. Factorise the following expression: (i) $(\square - \square)^2 + (\square - \square)$
(ii) $\square^2 + 2a + ab + 2b$
35. Solve the equation : $2(x - 2) - 3(x - 3) = 5(x - 5) + 4(x - 8)$

SECTION -C (3 MARKS)

1. Find the area of a rectangle whose length is twice its breadth where ,breadth is $5x$.
2. Find the product of $7p^2(5p-2pq)$ and verify the result when $p=1,q=2$.
3. Simplify: (i) $(a^2+b^2)(a^2+b^2)+(a^2-b^2)(a^2-b^2)$
(ii) $5x^2 - 2x + 7 - 9 + 7x - 3x^2 + 4x^2 - x + 1$
4. Factorise: (i) $ax+ay+cy+cx$ (ii) $(a+b)^2-(a+b)$
5. By how much does the expression $23x^2+32x+2$ exceed the expression $15x+11x^2-1$.
6. Factorise: $axy + bcxy - az - bcz$
7. Find the product & verify $m = -2, n = 0; (m^3 + n^3)(2m - 3n)$

8. Simplify: $(2x - 3y)(3x + y) + (x + 2y)(x - y)$
9. Verify: $(x - y)^{-1} \neq x^{-1} - y^{-1}$; for $x = \frac{2}{7}$; $y = \frac{4}{7}$.
10. Simplify and verify the result: $(x^3y - y^2)(x^3y + y^2)$; for $x=1$ and $y = -2$
11. Factorise : $4(p+q)(3a - b) - 6(p+q)(2b - 3a)$
12. Find HCF of the terms: (a) $15a^3$, $-45a^2$, $150a$ (b) $x^4y - 3x^2y^2 - 6xy^3$
13. Simplify: $(a + 2b)(a - b) + (2a - b)(a + b)$
14. Simplify and verify the result for the given values: $(2p + 3q)(4p^2 + 12pq + 9q^2)$; $p = \frac{1}{2}$, $q = \frac{1}{3}$
15. Simplify: $p^2(2pq + q^3) - 2q^2(p^2q + 5)$.
16. Find the HCF of the given term in the algebraic expression and factorize :
 $7x^3y - 14x^2y^2 + 28x^2y^3$.
17. Multiply and verify the results at $X = 1$ and $Y = 2$, $(x + y)(x^2 - xy + y^2)$
18. Simplify the following: $(1^2 + 2^2)(3^2 + 4^2) - (1^2 - 2^2)(3^2 - 4^2)$.
19. Express $1.5a^2(10ab - 4b^2)$ as a binomial & then evaluate at $a = -2$, $b = 3$.
20. Factorize $a(a+b) + 8a + 8b$.
21. The perimeter of a triangle is $(x^2y + 10)$ units. One of the side is $(x^2y - 4)$ units & another side is $(3 - 2x^2y)$ units. Find the third side.
22. The perimeter of a triangle is $(x^2y + 10)$ units. One of the side is $(x^2y - 4)$ units & another side is $(3 - 2x^2y)$ units. Find the third side.
23. Find the product: $(5x + 3)(2x + 4)$.
24. Simplify: $p^2(2pq + q^3) - 2q^2(p^2q + 5)$.
25. Factorise; $-36x^2 - x^3 = \dots$

SECTION -D (4 MARKS)

1. Find the value of the given expressions when $a=0$, $b=-1$, $c=1$
- i) $a^2 + 2ab + b^3$ ii) $3ab + 3ac + c^2$
2. Find the product of $(-2xyz) \left(\frac{2}{3}xy\right) \left(\frac{1}{5}yz\right)$ and verify the result for $x=1, y=2, z = -1$.
3. Find H.C.F of the terms and factorise : $15x^3y - 5x^2y^2 - 10xy^2$.
4. Simplify : $3x^2(3y^2 + 2) - x(x - 2xy^2) + y(2x^2y - 2y)$.
5. Simplify and express the result for the given values: $(m^2 + mn + n^2)(m + n)$; $m=3, n=2$
6. Simplify $3x^2(3y^2 + 2) - x(x - 2xy^2) + y(2x^2y - 2y)$.
7. Factorise : (i) $a^2 + bc + ac + ab$ (ii) $3a(p - 2q) - b(p - 2q)$
8. a) Factorise: $ab^2 - bc^2 - ab + c^2$ b) Simplify : $(y^2 - 7y + 4)(3y^2 - 2 + y)$
9. Simplify : $3p^2(3q^2 + 2) - p(p - 2q^2) + q(2p^2q - 2q)$ and verify the result for $p = 1$ and $q = -1$.
10. Find the product & verify: $\left(\frac{5}{4}x^2 - \frac{3}{2}xy\right)(x + y + y^2)$ for $x = -2$ $y = 3$.

11. Simplify : (a) $(a^2 + b^2)(a^2 + b^2) - (a^2 - b^2)(a^2 - b^2)$
 (b) Find the HCF of $2x^3y^2$, $10x^2y^2$, $14x^2$
12. Simplify: $-6x^2(xy + 2y^2) - 3y^2(2x^2 + y)$.
13. Find the product & verify $m = -2$, $n = 0$; $(m^3 + n^3)(2m - 3n)$
14. Factorise: i) $ax + ay - bx - by$. ii) $(x+1)^2 - 4(x+1)$
15. Express $1.5a^2(10ab - 4b^2)$ as a binomial and then evaluate it for $a=-2$, $b=3$.

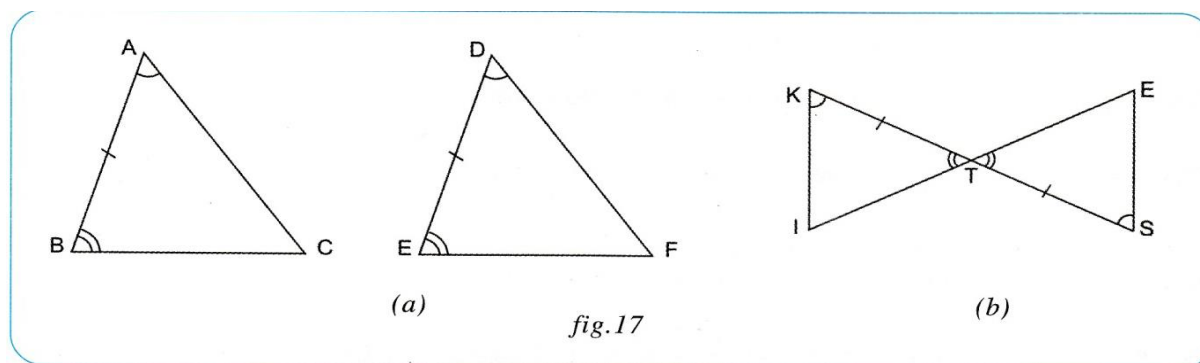
CHAPTER-9 (CONGRUENT TRIANGLES)

SECTION – A (1 MARKS)

- Define congruence of triangles.
- Give any three real life example for congruent shape.
- If triangle ABC and triangle DEF are congruent under the correspondence: $ABC \leftrightarrow FED$
 Write the parts of triangle ABC that corresponds to BC :
 a) DE b) ED c) FD d)DF
- Among two congruent angles, one has a measure of 70° . What is the measure of the other angle?
 (a) 14° (b) 35° (c) 70° (d) 110°
- $\Delta ABC \cong \Delta DEF$. If $AB = 7\text{cm}$, what is the length of DE ?
 (a) 14cm (b) 16 cm (c) 7cm (d) 18cm
- If $\Delta PQR \cong \Delta EFD$, which side of ΔPQR equals ED ?
- Two rectangles are congruent if _____?
- If $PQ = YZ$, $\angle Q = \angle Z$, and $QR = ZX$, then $\Delta PQR \cong$ _____ by SAS congruence condition.

SECTION – B (2 MARKS)

- ABCD is a rectangle. AC is a diagonal (Draw a figure). By using SSS Congruence rule Show that $\Delta ABC \cong \Delta CDA$
- Write criteria of congruence of a triangle.
- Say whether the following pairs of triangles are congruent or not using the ASA congruence of triangles.



5. Study the following pairs of triangles in each case and identify the congruent parts (Use ASA congruence)

	Figures		Side/Angle	Corresponding side/angle
a)		i)	$\hat{T}SA$	
		ii)	\overline{SA}	
		iii)	$\hat{T}AS$	

SECTION – C (3 MARKS)

1. ABCD is a rhombus. AC is a diagonal

i) Show three pairs of equal parts giving reasons, in ΔABC and ΔADC .

ii) Is $\Delta ABC \cong \Delta ADC$? Give reason.

iii) Is $\angle BAC = \angle DAC$? Give reason.

2. Prove that in an isosceles triangle, the angle opposite to the equal sides are equal.

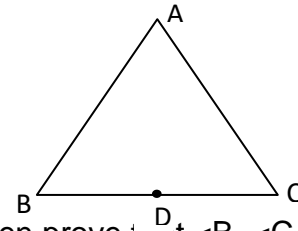
3. In the given figure $AB = AC$ and D is the midpoint of BC.

a) Prove that $\Delta ADB \cong \Delta ADC$

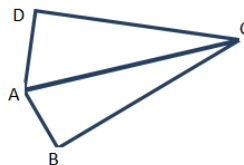
b) Is angle B = angle C

Give reasons.

5. In triangle ABC, $AB=AC$ and AD is the bisector of angle A then prove that $\angle B = \angle C$.



6. $\angle B = \angle D = 90^\circ$, and side $BC = DC = 6.5\text{cm}$. Are the two triangles congruent? State the result in symbolic form.

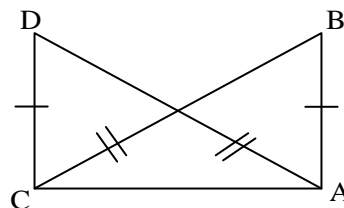


7. Prove that the bisector of the vertical angle of an isosceles triangle is perpendicular to the base.

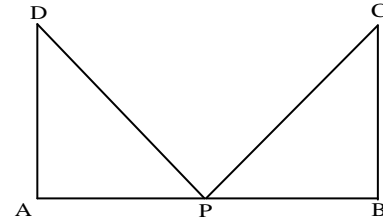
8. In the figure it is given that

$AB = CD$ and $AD = BC$

prove that $\Delta ADC \cong \Delta CBA$



9. In the figure $AD \perp AB$ and $BC \perp AB$. P is midpoint of AB . If $AD = BC$.Prove that $\triangle ADP \cong \triangle BCP$



10. State which of the following pairs of triangles are congruent. If yes, write them in symbolic form.

- (a) $\triangle PQR$: $PQ = 3.5\text{cm}$, $QR = 4.0\text{ cm}$, $\angle Q = 60^\circ$ $\triangle STU$: $ST = 3.5\text{cm}$, $TU = 4\text{cm}$, $\angle T = 60^\circ$
 (b) $\triangle ABC$: $AB = 4.8\text{ cm}$, $\angle A = 90^\circ$, $AC = 6.8\text{ cm}$ $\triangle XYZ$: $YZ = 6.8\text{ cm}$, $\angle X = 90^\circ$, $ZX = 4.8\text{ cm}$

11. Triangles DEF and LMN are both isosceles with $DE = DF$ and $LM = LN$, respectively. If $DE = LM$ and $EF = MN$, then, are the two triangles congruent? Which condition do you use? If $\angle E = 40^\circ$, what is the measure of $\angle N$?

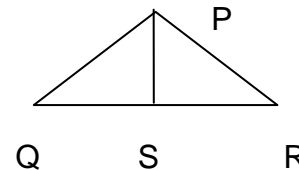
12. If $\triangle PQR$ and $\triangle SQR$ are both isosceles triangle on a common base QR such that P and S lie on the same side of QR. Are triangles PSQ and PSR congruent? Which condition do you use?

13. Height of a pole is 8m. Find the length of rope tied with its top from a point on the ground at a distance of 6m from its bottom.

14. Without drawing the triangles write all six pairs of equal measures in each of the following pairs of congruent triangles.

- (a) $\triangle STU \cong \triangle DEF$ (b) $\triangle ABC \cong \triangle LMN$ (c) $\triangle YZX \cong \triangle PQR$ (d) $\triangle XYZ \cong \triangle MLN$

15. If $\triangle PQR$ is an isosceles triangle such that $PQ = PR$, then prove that the altitude PS from P on QR bisects QR.



SECTION – D (4 MARKS)

1. ABC is an isosceles triangle with $AB = BC$ and $AD \perp BC$.

In $\triangle ABD$ and $\triangle ACD$

- i) Show three pairs of equal parts giving reasons.
- ii) Is $\triangle ADB \cong \triangle ADC$? Give reason.
- iii) Is $\angle BAD = \angle CAD$? Give reason.

2. In the figure PQ and XY bisect each other at O.

- i) Show three pairs of equal parts in $\triangle POX$ and $\triangle QOY$
- ii) Is $\triangle POX \cong \triangle QOY$ Give reasons X Y
- iii) Is $\angle X = \angle Y$? Give reasons

3. In a triangle ABC, P and Q are points on equal sides AB and AC such that AP=AQ. Prove that BQ=CP.

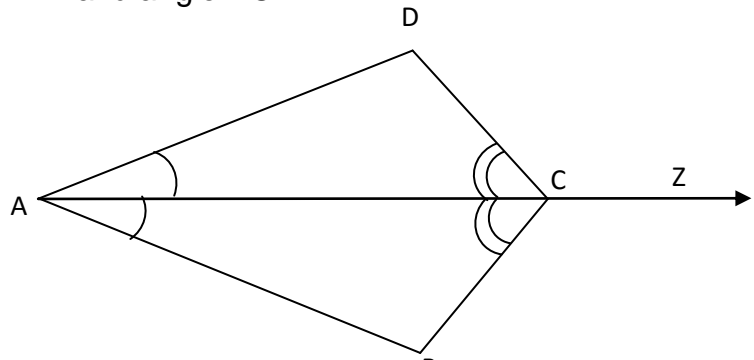
4. In the given figure ray AZ bisects angle BAD and angle DCB:

a) Prove that the $\Delta BAC \cong \Delta DAC$

b) Is $AB = AD$?

c) Is $CD = CB$?

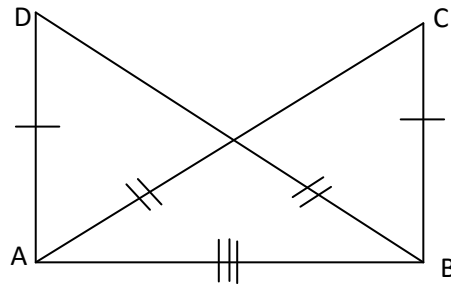
Give reasons



5. If $AC = BD$, $AD = BC$ which of the following statements is meaningful written

a) $\Delta ABC \cong \Delta ABD$

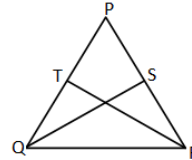
b) $\Delta ABC \cong \Delta BAD$



6. QS and RT are the altitudes of ΔPQR , and $QS = RT$

(a) Is $\Delta QRS \cong \Delta RQT$ by RHS congruence condition?

(b) State the three pairs of corresponding parts which make $\Delta QRS \cong \Delta RQT$.

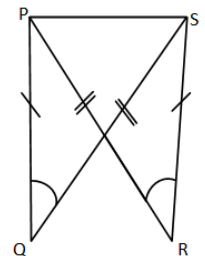


7. In the given figure, PQS and PRS are two triangles on a common base PS such that $PQ = SR$ and $PR = SQ$.

(i) Is $\Delta PSQ \cong \Delta SPR$? By which congruence condition?

(ii) State the three pairs of corresponding parts you have used to answer (i).

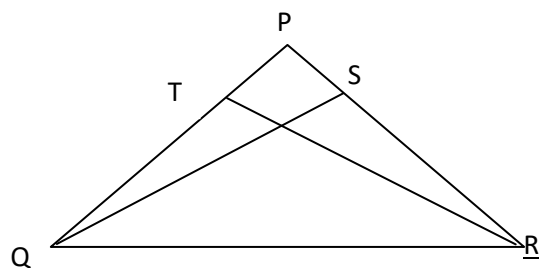
(iii) If $\angle SRP = 40^\circ$, and $\angle QPS = 110^\circ$, find $\angle PSQ$.



8. QS & RT are the altitudes of triangle PQR & $QS = RT$

(a) Is triangle QRS congruent triangle RQT by which condition?

(b) State the three pairs of corresponding parts which make triangle QRS congruent triangle RQT.



9. In the given fig., ray AZ bisects $\angle DAB$ as well as $\angle DCB$.

(i) State the three pairs of equal parts in triangles BAC and DAC.

(ii) Is $\triangle BAC \cong \triangle DAC$? Give reasons.

(iii) Is $AB = AD$? Justify your answer.

(iv) Is $CD = CB$? Give reasons.

10. In triangle ABC, $AB = AC$ and $AD \perp BC$. Prove that $\angle B = \angle C$.

11. ABC is an isosceles triangle with $AB = AC$ and AD is one of its altitudes.

(i) State the three pairs of equal parts in $\triangle ADB$ and $\triangle ADC$.

(ii) Is $\triangle ADB \cong \triangle ADC$? Why or why not?

(iii) Is $\angle B = \angle C$? Why or why not?

(iv) Is $BD = CD$? Why or why not?

12. Show that the bisector of the vertical angle of an isosceles triangle bisect the base at right angle.

CHAPTER-13 (SYMMETRY)

SECTION – A (1 MARKS)

1. Regular pentagon hasline of symmetry.
2. Equilateral triangle has lines of symmetry.
3. Regular hexagon has lines of symmetry.
4. In an isosceles right triangle, the number of lines of symmetry is_____
5. When an object rotates, its shape and size change. (True/False)
6. How many lines of symmetry does a circle have ?
a)1 b) 2 c) 4 d) Infinite
7. The number of lines of symmetry of an isosceles triangle is _____ .
a) 0 b) 1 c) 2 d) 3

SECTION – B (2 MARKS)

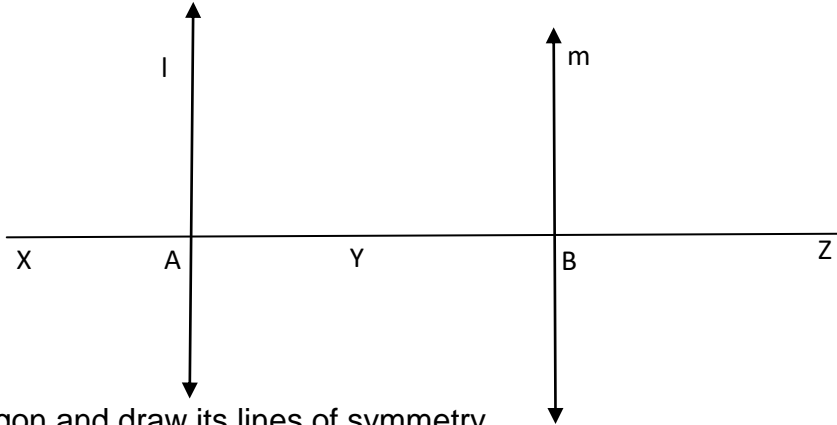
1. Make any three ink dot designs.
2. Write three letters of English alphabet having no line of symmetry.
3. Write three letters of English alphabet having one line of symmetry.
4. How many lines of symmetry a rectangle have ? Draw the lines of symmetry of a rectangle.
5. Find the line of symmetry of the following angles :(i) 60° (ii) 120°

SECTION – C (3 MARKS)

1. Draw an isosceles trapezium and draw its line(s) of symmetry.
2. How many lines of symmetry does an isosceles triangle have? Draw the lines of symmetry of the triangle.
3. How many lines of symmetry does a square have? Draw the lines of symmetry of the square.
4. Draw the lines of symmetry of a Regular octagon.
5. Construct an equilateral triangle and draw its lines of symmetry.

SECTION – D (4 MARKS)

1. Lines l and m are the lines of symmetry of the line segment XY and YZ respectively. If $XA=5\text{cm}$ and $YZ=8\text{cm}$, find AY, YB, XZ .



2. Draw a hexagon and draw its lines of symmetry.
3. Draw the images of any three figures.
4. Draw a Rhombus and draw its line of symmetry.
5. Define a kite and draw its line of symmetry.

CHAPTER-14 (VISUALISING SOLIDS)

SECTION – A (1 MARKS)

1. Out of the following which is a 3-D figure?
a) Square b) Sphere c) Triangle d) Circle
2. Total number of edges a cylinder has
a) 0 b) 1 c) 2 d) 3
3. The solid with one circular face, one curved surface and one vertex is known as:
a) cone b) sphere c) cylinder d) prism
4. All faces of a pyramid are always:
a) Triangular b) Rectangular c) Congruent d) None of these
5. A solid that has only one vertex is
a) Pyramid b) Cube c) Cone d) Cylinder

SECTION – B (2 MARKS)

1. If three cubes each of edge 4 cm are placed end to end, then find the dimensions of resulting solid.
2. By what minimum angle does a regular hexagon rotate so as to coincide with its original position for the first time?
3. How many faces, edges and vertices does a triangular prism have?
4. How many vertices are there of a sphere?
5. How many faces, edges and vertices does a cuboid have?

SECTION – C (3 MARKS)

1. Draw the net of a triangular prism whose base is an equilateral triangle.
2. The number of face of a pyramid is 5. Find the number of its vertices when its edges are eight.
3. Which of the following are not a polyhedron? A cube, a prism, a cone or a cuboid ?
4. How many faces, edges and vertices does a cube have ? What is the shape of each face?
5. How many faces, edges and vertices does a triangular prism have?

SECTION – D (4 MARKS)

1. Sketch a cuboid of size $3 \times 2 \times 1$ on a squared paper.
2. Draw an isometric sketch for a cuboid of dimensions $6 \times 3 \times 4$.
3. Draw an oblique sketch of a cube with dimension $3 \times 3 \times 3$ on a squared paper.
4. Draw the net of a of a square pyramid.
5. What is the Euler's formula? Using it find the number of faces of tetrahedron having vertices as 4 and 6 edges.
