Grade**: 8** **Mathematics: Holiday Home Work for 30 days** **March-20**

DAY 1

A. Number System:

1. What are natural numbers?

- What is the smallest natural number?
- Are all the numbers positive?
- Is 0 a natural number?

2. What are whole numbers?

- Is the set of whole numbers bigger than the set of natural numbers?
- What is the difference between set of natural numbers and whole numbers?
- What is the least/smallest number in the set of whole numbers?
- Do we have negative numbers in the set of whole numbers?

Properties of whole numbers:

3. What is commutative property of whole numbers under addition? Give an example.

- What is asosciative property of whole numbers under addition? Give an example.
- What is additive identity? Give two examples.
- What is commutative property, associative property of whole numbers under multipliaiton? Give two examples.
- What is distributive property? Give two examples.

4(a). Which number precedes 78,000? .

(b) Find the predecessor of 83,20,000.

(c). Which number succeeds 57,899?

(d). Find the successor of 5,21,199.

5. Write four whole numbers before 28201.

6. Identify the property of addition for whole numbers used in the following equality:

48 + 79 = 79 + 48.

Identify the properties used in the following questions:

7. Evaluate using properties of whole numbers: (95 x 7) + (95 x 3).

8. Fill in the blank so that the equality holds: 12 + (4 + 6)= (____+6)+12.

9. Hiyang bought a shirt for Rs.475 and a trouser for Rs.1025. How much amount will he pay if he bought 2 shirts and 2 trousers?

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10. Write two examples to show that whole numbers are not closed under subtraction.

11. Write two examples to show that whole numbers are not closed under division.

12. Identify the property of whole numbers used in the following equality:

32 + (93+15)=(32+93)+15

13. Identify property of multiplication used in the following equality:

47 x 3 +47 x 7 = 47(3+7)

14. Find the sum of the following expression by rearrangement: 463 + 155 + 637 + 845.

15. Use suitable property to solve the following:

(i) 236 x 999 (ii) 478 x 102 (iii) 182 x 5 (iv) 64 x 25 (v) 43 x 125

(vi) 56 x 15 (vii) 12 x 35.

16. Which of the following gives 1 as answer?

(i) 4231 +1 (ii) 4325-4325 (iii) $1 \div 2463$ (iv) $6343 \div 6343$

17. Give one example to show that the Associative property of division of whole numbers does not hold.

18. Evaluate the following expression by suitable rearrangement: 625 x 30 x 8 x 20

19.(a) Convert 2 kilograms into grams

(b). How many kilometres equals 1000 meters?

(c). How many meters equal 1000 cm?

20. A new music video on the web received 2,78,946 hits the first day and 3,17,823 hits the second day. How many hits did the video receive in all during the two days?
(Ans.: 5,96,769)

21. What is the difference between the face values and the place values of the two nines in 8936954? (Ans. : 8,99,991 and 891)

22. State distributive property and solve.:

(i) 101 x 497 (ii) 77 x 23 (iii) 203 x 42 (iv) 497 x 98

23. A machine produces 3,575 erasers in a day. How many erasers were produced in February 2016? (Ans.: 1,03,675)

24. For the school fete, a ticket costs Rs.8. There are 25 students in each class and each student bought a ticket. If there are 78 classes in the school, then how much money was collected by the sale of tickets?

25. There are 15 classes in a school. In each class, there are 22 boys and 28 girls. Find the total number of students in the school? Which property of whole numbers would you use to quickly find the answer?

26 A large housing complex has 30 towers. Among these, six towers have 14 floors and 6 flats on each floor. Twelve towers have 22 floors with 4 flats on each floor and 12 towers have 26 floors with 3 flats on each floor. Find the total number of flats in the housing complex. (Hint: Remember that multiplication is distributive over addition).

DAY 2

Even Numbers:

1. What are even numbers? Give 3 examples.

2. What are odd numbers? Give 3 examples.

3. What are prime numbers? Give 3 examples.

4. What are composite numbers? Give 3 examples.

5. What are co-prime numbers? Give 3 examples.

6. What are twin primes? Give 3 examples.

Factors, H.C.F, L.C.M, Multiples.

7. What are called as factors? List the factors of 12.

- If there are 12 chacolates, in how many ways can you group them into equal numbers?
- What are the factos of prime numbers?
- How many factors can you ahve for any given number? Find out by taking two examples. Are the factors finite/infinite?

8. What are multiples? List the multiples of 12.

- Find the 10 multiples of 2.
- Find the 10 multiples of 3.
- Find the 6 multiples of 12.
- Are the multiples of any number finite/infinite?

9. What is H.C.F? If H.C.F of two numbers is 1, what are those numbers called?

10. What is L.C.M? Can L.C.M of any two numbers be equal to 1?

11. What are consecutive numbers?

- Write 5 consecutive natural numbers.
- Write 5 consecutive whole number.
- Write 5 consecutive integers.
- Write 5 consecutive prime numbers.
- Write 5 consecutive even numbers.
- Write 5 consecutive odd numbers.
- Write 5 consecutive composite numbers.

12. What is the relation between H.C.F and L.C.M of two given numbers.

13. a. Write all the factors of 15. b. Write the first four multiples of 7.

14. Write all the prime numbers between 1 and 15.

15. Write two pairs of twin-prime numbers.

16. Using the tests of divisibility find which of the following numbers is divisible by both 2 and 5?

(i) 23785 (ii) 93234 (iii) 70890 (iv) 48308

17. Using the tests of divisibility find which of the following numbers is divisible by both 4 and 6.

(i) 23780 (ii) 93220 (iii) 894532 (iv) 60828

18. Using tests of divisibility, find if 55530 is divisible by 45.

19. Find the number closest to and bigger than 1000 that is divisible by both 5 and 6.

20. Find the prime factorisation of 135 using factor tree.

21. Find the prime factorisation of 390.

22. Write the prime factorisation of the smallest 4 digit number.

23. Find the LCM of 45, 78 and 15 by prime factorisation method.

24. Find the LCM of 12, 24 and 36.

25. What is the HCF of 1632, 2976 and 3552?

26. Find the greatest number that divides 79, 115 and 163 leaving remainder 7 in each case.

27. Replace * by the smallest digit so that: (i) 784*679 is divisible by 3

(ii) 25*470 is divisible by 9.

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28. Replace * by the smallest digit so that:
(i) 963*48 is divisible by 8 (ii) 1567*78 is divisible by 6.

29. Using tests of divisibility, find if 55530 is divisible by 45.

30. The HCF of two numbers is 15. The product of the two numbers is 345. What is their LCM?

31. Given two numbers 48 and 80, find their HCF and LCM and verify that HCF x LCM = 48 x 80.

32. Megha has two pieces of cloth. One cloth is 270cm long and the other one is 350cm long. She wants to cut them into strips of equal length that are as long as possible. What is the length of each strip?

33. Two water tanks have capacities 30 litres and 18 litres, respectively. What is the highest measure of a measuring cylinder which can exactly measure the water of both the tanks when the tanks are full?

34. There are two bells in a school. The bell for the middle school rings every 60 minutes, whereas the bell for the junior school rings every 30 minutes. If the school starts at 10:00 AM, when will the bells ring together?

35. Four bells ring at intervals of 4, 7, 12 and 84 seconds, respectively. If they start ringing together at 7O'clock, when will they ring together again?

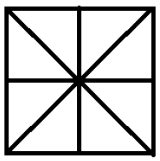
Fractions.

Day 3

1. What is a fraction? Give two examples.

- What are proper fractions? Give two examples.
- What are improper fractions? Give two examples.
- What are like fractions? Give two examples.
- What are unlike fractions? Give two examples.
- What are equivalent fractions?
- How do you find if two fractions are equivalent?

2. Shade each figure to represent the given fractions.

(i)  $\frac{5}{8}$  (ii) $\frac{8}{12}$

3. What fraction is 375g of 1 Kg.?

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4. Into how many parts would you divide the length between 0 and 1 to represent the fraction $\frac{1}{11}$.

5. Which of the following are proper fractions?

(i) $\frac{7}{6}$ (ii) $\frac{78}{89}$ (iii) $\frac{80}{79}$ (iv) $\frac{1}{8}$

6. Write a proper fraction whose denominator is 6.

7. Write the following improper fractions as mixed fractions:

(i) $\frac{38}{7}$ (ii) $\frac{123}{11}$

8. Write the following mixed fractions as improper fractions:

(i) $3\frac{4}{7}$ (ii) $5\frac{7}{12}$

9. Write three equivalent fractions of $\frac{12}{13}$.

10. Write the following fractions in their simplest form.(i) $\frac{40}{48}$ (ii) $\frac{78}{130}$

11. Which of them are like fractions? $\frac{1}{2}, \frac{2}{5}, \frac{1}{3}, \frac{3}{5}, \frac{1}{5}$

12. Compare the pair of fractions and fill in the blanks appropriately with <, > or =.

(*i*) $\frac{4}{6} \square \frac{5}{6}$ (*ii*) $\frac{1}{2} \square \frac{2}{4}$ (*iii*) $\frac{4}{9} \square \frac{4}{10}$

13. Find the sum: $\frac{1}{9} + \frac{4}{9}$

14. Find the difference: $\frac{7}{13} - \frac{3}{13}$

15. Gopichand spends $\frac{8}{12}$ of his income and saves the rest. Bimal spends $\frac{9}{12}$ of his income and saves the rest. Who spends the greater share of his income?

16. A fruit basket has 5 oranges, 4 apples and 7 pears. What fraction of all the fruits are oranges?

17. What fraction of numbers between 20 and 31 are:(i) Multiples of 3? (ii) Multiples of 5?

18. Write all the proper fractions whose denominator is 2 more than the numerator but less than 8.

19. Find an equivalent fraction of $\frac{6}{8}$ with denominator 56.

20. Replace @ in the given equality with an appropriate number using cross-product method:
$\frac{5}{7}=\frac{35}{@}$

21. Which of the given pair of fractions are equivalent?

(i) $\frac{3}{9}$ *and* $\frac{12}{36}$ (ii) $\frac{48}{72}$ *and* $\frac{6}{9}$ (iii) $\frac{9}{13}$ *and* $\frac{72}{91}$

22. Arrange the given fractions in ascending order: $\frac{3}{9},\frac{8}{18},\frac{6}{9},\frac{9}{9},\frac{16}{18},\frac{1}{9}$

23. Arrange the given fractions in descending order: $\frac{3}{9},\frac{3}{8},\frac{3}{10},\frac{9}{33},\frac{3}{5},\frac{3}{4}$

24. Harmeet jogged $\frac{5}{7}$ of an hour and Hitesh jogged $\frac{7}{9}$ of an hour. Who jogged for a longer duration?

25. Lathika painted $\frac{6}{8}$ and Harvinder $\frac{7}{10}$ of the fence around the school garden. Who painted more?

26. Find the sum: $\frac{12}{28}+\frac{2}{8}$ 29. Find the difference: $\frac{9}{12}-\frac{5}{16}$

27. In an exam, Manoj answered 25 questions correctly. If the total number of questions asked in the exam were 40 and he didn't attempt 7 questions find:

(i) The fraction of answers he got right.(ii) The fraction of answers he got wrong.
(iii) The fraction of questions he did not answer.

28. Write all the proper fractions whose numerator and denominator are prime numbers between 65 and 80.

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29. In Section A of 40 students, 36 students got more than 80% marks. In section B of 36 students, 30 students got more than 80% marks. In which section did a greater fraction of students score more than 80%?

30. Find the sum: $2+\frac{3}{4}+1\frac{5}{8}$

31. Find the difference: $5\frac{10}{15}-3\frac{2}{16}$

32. On my birthday party, my friends ate $5\frac{1}{4}$ pizzas. There were $2\frac{3}{4}$ pizzas left over. How many pizzas were bought for the party?

33. Ashu had $3\frac{1}{2}$ bars of chocolate. He gave $1\frac{1}{4}$ to his sister. How much chocolate is left with him?

34. Sam read $1\frac{5}{13}$ pages of a novel on Saturday and $17\frac{7}{12}$ pages on Sunday. Find:

(i) How many more pages did he read on Sunday than on Saturday?

(ii) The total number of pages read on Saturday and Sunday.

35. Can you represent decimals as fractions?

36. What are like decimals? Give 2 examples.

37. What are unlike decimals? Give 2 examples.

38. Write the following fractions as decimals: (i) $\frac{5}{2}$ (ii) $\frac{2}{5}$ (iii) $\frac{7}{10}$

39. Change the unit of each of the following measures to cm.
(i) 6cm (ii) 3cm 9cm (iii) 540 cm

40. The length of an eraser is 13mm. What would be its length in cm?

41. Write the following as decimals:

(i) $4\frac{2}{5}$ (ii) 600 + 70+8+$\frac{9}{10}$ (iii) $\frac{6}{8}$ (iv) $\frac{8}{1000}$ (v) $200+40+5+\frac{7}{10}+\frac{8}{100}+\frac{9}{1000}$

42. Find the sum in each case.

(i) 40.67 + 53.19 (ii) 251.34+234.24+89.34 (iii) 256.009+34.27+8.8

43. Find the difference in each case.

(i) 97.67-45.78 (ii) 514.78-34.09 (iii) 24.07-4.678

44. Fareeda wants to purchase a dress for Rs.245.70. She has Rs.195.50 with her. How much more money does she need?

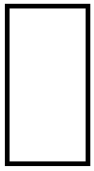
45. The temperature in a city at noon was $30.8°C$. It rained a little and the temperature cam down by $9.6°C$. What was the temperature of the city after the rains?

Mensuration

DAY 4

1. Draw a square of side 4 cm.

2. Measure and find if the following are squares or rectangles.

a)  b)  c)  d) 

3. a) What do you mean by perimeter of any closed figure.

b) What do you mean by area of any closed figure?

4. Why do we use units to measure area and perimeter?

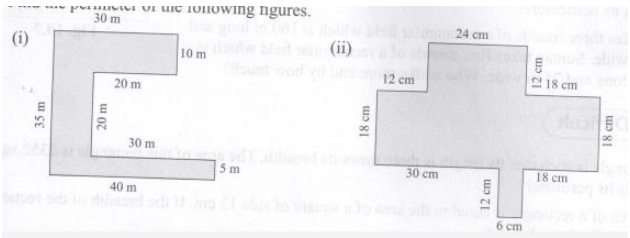
5. Write the formulas for a) Perimeter of the rectangle. b) Perimeter of a square.
c) Area of a square d) Area of a rectangle.

6. What do you mean by regular figures? Give two examples.

7. Given a side of length ℓ. Find

a) Perimeter of equilateral triangle b) Perimeter of a square c) Perimeter of a regular pentagon. d) Perimeter of a regular hexagon.

8. Find the perimeter of the following figures.



9. Find the perimeter of a square of side 12 cm.

10. What is the perimeter of a rectangle whose length is 20cm and breadth is 10cms?

11. a) What is the perimeter of an equilateral triangle of side 42cm?

b) What is the perimeter of a regular pentagon with each side measuring 24cm?

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12. a) What is the area of a square of side 6m?

b) What is the area of a rectangle with sides 35mm and 15mm?

13. Ashu wants to buy a table cloth that exactly covers a rectangular table which is 27 inches long and 18 inches broad. What should be the area of the table cloth? Give your answer in sq. inches.

14. Rohan takes 5 laps around a rectangular field which is 60m long and 35m wide. How much distance he cover.

15. Geeta walks around a square park four times. If the side of the park measures 150m, how much distance does she cover?

16. The length of a rectangle is 52.87 m and the breadth is 17.43m.
what is its perimeter?

17. Rita takes three rounds of a rectangular field which is 160m long and 150m wide, Suman takes four rounds of a rectangular field which is 120m long and 75m wide. Who walks more and by how much?

18. The dimensions of the floor of a room are 10m x 8m. It has to be covered with tiles measuring 0.8m x 0.5m. How many such tiles are required?

19. A room has length 15m and breadth 12m. The floor of the room has to be tiled with square tiles of side 0.6m. How many tiles are required?

20. Given that the area of each small square is 1 square unit, what is the area of the shaded portion in Figure 10.7?

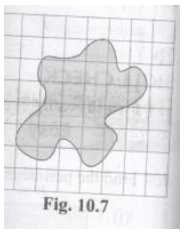
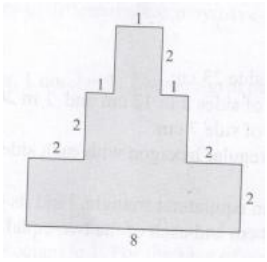


Fig. 10.7

21. Find the area of the given figure by splitting it into rectangles.



22. A craftsman wants to make a huge rectangular carpet measuring 12.8m x 5.5m by joining together small carpet patches measuring 0.5m x 0.8m. How many such patches are required?

23. The dimensions of a room are 4.25m x 3.25m. A square carpet of side 0.8m is laid on the floor. What is the area of the uncovered floor?

24. A piece of cardboard is 3.25 m long and 2.75 m wide. Four square pieces of sides 0.75m are cut out of it. What is the area of the cardboard left?

Chapter: Basic Geometrical Ideas.

25. Draw a) Ray b) Line c) Line segment

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26. Choose the correct option:

(i) A_____ marks the exact location of an object. a) plane b) point c) lined) ray

(ii). A collection of points along a straight path going endlessly in both directions is called a _____. a) ray b) line c) line segment d) plane

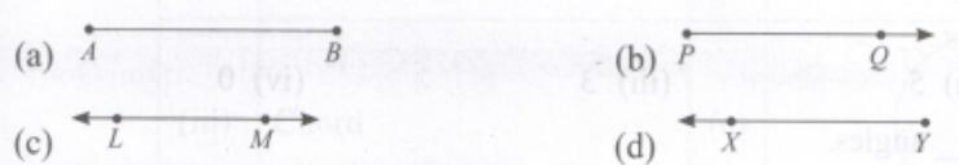
(iii) A _____ as no length, breadth or height.

a) point b) line c) plane d) ray

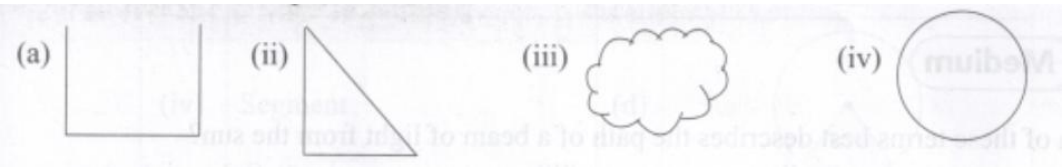
(iv) A _____ has only length and no width.

a) point b) line c) plane d) ray.

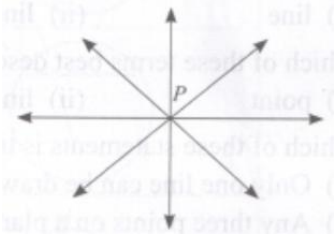
(v) Which of these is a line?



(vi) Which of these is an open curve?

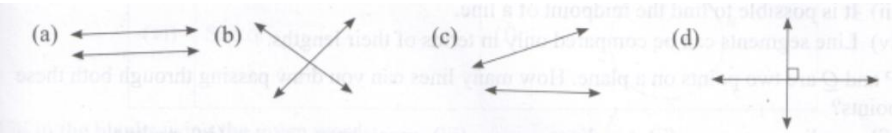


(vii) In the given figure, point P is _____.

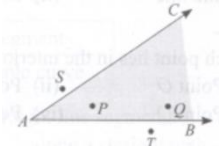


(a) Vertical point
(b) point of concurrence
(c) point of intersection
(d) both point of intersection and point of concurrence.

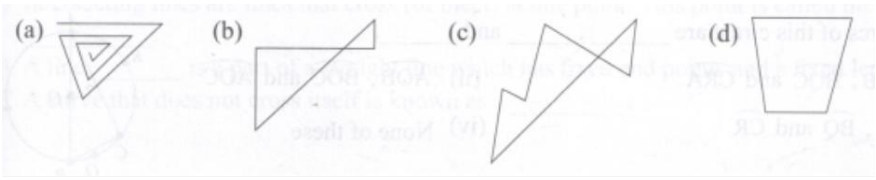
(viii) Which of these pairs of lines are parallel?



(ix) Which of these points lie in the interior of the angle CAB?



(x) Which of these is an open curve?



27. Match the geometric entities in column A with the way they are denoted in column B.

Column A	Column B
(i) Line	(a) $\angle ABC$
(ii) Ray	(b) $\overline{AB}$
(iii) Line segment	(c) $\vec{AB}$
(iv) Angle	(d) $\triangle ABC$
(v) triangle	(e) $\overleftrightarrow{AB}$

28. A quadrilateral has _____angles. (i) 4 (ii) 5 (iii) 3 (iv) 2

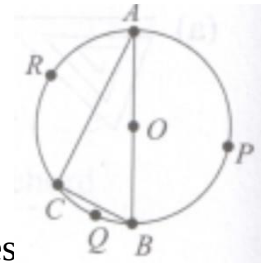
29. Which of these terms best describes the path of a beam of light from the sun?

(i) line (ii) line segment (iii) ray (iv) point

30. Which of these terms best describes the path of an arrow fired from its bow to hit a target?

(i) point (ii) line (iii) line segment (iv) ray

31. Consider the given figure.
Three arcs of this circle are _____ , _____ and _____.



(i) ABC, BQC and CRA (ii) AOB, BOC and AOC

(iii) AP, BQ and CR (iv) None of these.

32. A circle has radius 12cm. What is the length of the longes stick that can be placed inside this circle such that the two ends of the stick lie on the circle?

(i) 12cm (ii) 24cm (iii) 18cm (iv) 36cm.

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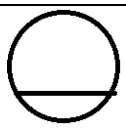
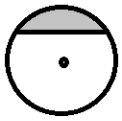
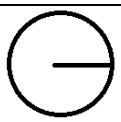
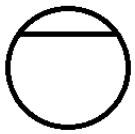
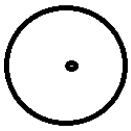
33. Match the parts of a circle given in Column A with their figures given in column B.

	Column A		Column B
(i)	Radius	(a)	
(ii)	Diameter	(b)	
(iii)	Chord	(c)	
(iv)	Segment	(d)	
(v)	Arc	(e)	
(vi)	Sector	(f)	

33. Fill in the blanks using the given words:

Directions	Polygons	Segment
Diagonal	Intersection	Simple curve

(i) _____ are simple closed curves that are made of only straight line segments.

(ii) A line is a collection of points going endlessly in both_____ along a straight path.

(iii) Intersecting lines are lines that cross (or meet) at one point. This point is called the point of _____.

(iv) A line _____ is a part of a straight line which has fixed end points and a fixed length.

(v) A curve that does not cross itself is known as a _____.

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34. Consider the figure 4.2.

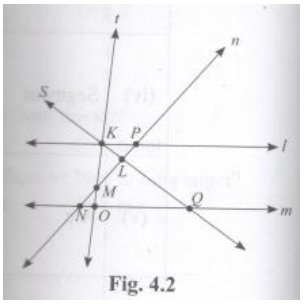

Fig. 4.2

Which of these is a pair of parallel lines?

(i) *l* and *n* (ii) *t* and *m* (iii) *s* and *m* (iv) *l* and *m*

35. How many radii does a circle have?

(i) 1 (ii) 10 (iii) infinite (iv) 2

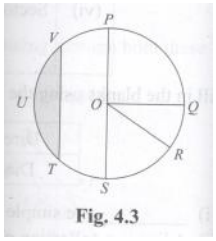

Fig. 4.3

36. Answer the following from figure 4.3

(i) Name the centre of the circle. (ii) Name two radii of the circle.

(iii) Name a diameter of the circle (iv) Name an arc of the circle.

(v) Name a segment of the circle. (vi) Name a sector of the circle

(vii) Name a chord of the circle.

Algebra

DAY - 5

1. Write the statements for the following algebraic expressions.

(i) x + 6 (ii) 20 + y (iii) 4 + 9r (iv) $\frac{2q}{5}$

2. Generalize the commutative property of addition of whole numbers using the variables m and n.

3. Which of the following are algebraic expressions?

$(i)12 \div (-8)$ $(ii)45 + (23 - 3)x2$ $(iii)44 - \frac{1}{2}$

$(iv)13 - \frac{1}{2}(4 - 7z)$ $(v)22x(39 \div 13) + 6$

4. Following are some algebraic statements. Change them into ordinary language.

(i) Shyam has Rs.x. Ritu has Rs.(x-8).

(ii) The length of a playground is *l*m. Its breadth is $\left(\frac{1}{3} - 4\right)m$

(iii) Ramesh has x marbles. Karn has $\frac{5}{4}x$ marbles.

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4. Write algebraic expressions for each of the following algebraic statements.

(i) n multiplied by 8 and then 15 subtracted from the product.

(ii) q multiplied by -4 and then 7 subtracted from the product.

5. Write the statements for the following algebraic expressions.

(i) 5a-1 (II) -20+y (iii) -8 (2 –m) (iv) $\frac{25}{s} - 2$

6. List all the expressions that can be formed using b and 4 such that:

- There is at the most one number operation in each expression.
- Each expression has b in it.

7. Formulate a rule to find the perimeter of a regular octagon if the length of its side is denoted by *l*. [Hint: A regular octagon has eight equal sides.]

8. Generalize the associative property of addition of whole numbers using the variables p, q and r.

9. Raveena has 3 dolls more than Naina. Find the number of dolls that Raveena has if Naina has n dolls.

10. A man is 3 years younger than Sudha. If Aman is x years old, what will be Sudha's age after 10 years.

11. Kaajal is 4 years younger than Reems. If Reema's age is y years, what is Kaajal's age?

12. The length of a rectangle is 2 times its breadth. Find the length if the breadth is b meters.

13. Choose the option that is the solution of the equation 32x = 352.

(i) x = 13 (ii) x = 12 (iii) x = 11 (iv) x = 14.

14. Choose the option that is the solution of the equation $\frac{4y}{10} = 6$

(i) y = 12 (ii) y = 15 (iii) y = 18 (iv) y = 30.

Ratio and Proportion.

15. Sam covers 1 km in 8 minutes. If he continues to walk at the same speed, how much distance will he cover in 24 minutes?

16. A box containing 10 pencils costs Rs.12. How much would 7 such boxes cost?

17. A room is 10 feet wide and 12 feet long. What is the ratio of its length to its breadth?

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18. Divide Rs.520 between two friends in the ratio 5 : 8.

19. Which of these ratios is/are equivalent to 4 : 9?

(i) 28 : 63 (ii) 44 : 99 (iii) 64 : 144 (iv) All of these.

20. Fill in the missing numbers: $\frac{4}{9} = \frac{\quad}{18} = \frac{24}{\quad} = \frac{\quad}{27}$

21. A bike covers 15m in one second. If the bike runs at the same speed, how much distance will it cover in 3 minutes?

22. A box containing 8 pairs of socks costs Rs.240. What will be the cost of 2 boxes containing 10 pairs of socks each?

23. The length of a hall in 45m and its breadth is 30m. What is the ratio of its length to its perimeter?

24. An amount of Rs.150 is divided between two boys in such a way that the first boy gets twice the amount that the second boy gets. How much money does each boy get?

25. What is the ratio of:

(i) 220mL to 3.5L? (ii) 60 paise to Rs.2?

26. Grandfather divided toys between Ganesh and Prerna in the ratio 7 : 9. Fill up the table that shows some possible number of chocolates shared between them.

Ganesh	14	63	_____	42
Prerna	18	_____	162	_____

27. A car covers 6Km in 4 minutes. If it travels at the same speed, how much distance will it cover in 2 hours.

28. A class room is 20 feet wide. Its length is twice as long as its breadth. What is the ratio of the length of the room to its perimeter?

29. The statue of Liberty is 93 m high. Its souvenir of height 12.4cm is to be made. What is the ratio of the height of the statue to that of the souvenir?

30. Samira sells newspapers at Janpath crossing daily. On a particular day, she had 312 newspapers out of which 216 are in English and remaining in Hindi. Find the ratio of

a) the number of English newspapers to the number of Hindi newspapers.

b) the number of Hindi newspapers to the total number of newspapers.

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Day 6 - Integers

1. Define the set of integers? Draw the number line to represent the set of integers.

2. Do we have negative numbers in the set of integers?

3. What is the greatest negative integer?

4. What is the least positive integer?

5. Is zero a positive integer or a negative integer?

6. Is the set of integers finite or infinite?

7. Where do we use negative integers in real life? Give three examples.

8.. Write the following as integers with appropriate signs.

(i) A gain of 20% (ii) 25°C above freezing point (iii) 10 Km below sea level
(iv) 15 Km above sea level (v) A fall of Rs.2 in price (vi) Deposit of Rs.2000.

9. Write the opposite statement of each of the following:

(i) Deposit of Rs.500 (ii) Going 20 Km north (iii) Withdrawal of Rs.350

(iv) Gaining 10 Kg. (v) Loss of Rs.200 (vi) 30 Km above sea level.

10. Compare the following pairs of numbers using the symbols < and >

(i) -2 _____ 0 (ii) -3 _____ -6 (iii) -3 _____ -1 (iv) 10 _____ 12

(v) -9 _____ - 22 (vi) -5 _____ 3 (vii) 8 _____ - 10

11. State whether the following are True or False. Correct the statement if incorrect.

(i) Negative numbers and positive numbers together form the system of integers.

(ii) The negative integers are smaller than the positive integers and zero.

(iii) Zero is neither a positive nor a negative integer.

(iv) -86 is greater than – 75. (v) -9 is to the left of -10 on a number line.

(vi) The smallest integer is 0

(vii) On a number line, if you move 2 steps to the left from 0, you will reach 2.

(vii) Two steps to the left of -7 is 5.

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12. Find the sum of each of the following:

(i) -34 + (-43) (ii) (-7) + (-5) (iii) (-12) + (-32) (iv) (-6)-10(v) (-13) – 20 (vi) -56 + (-12)

13. Find the difference of the following:

(i) 23-(7) (ii) 54 - (32) (iii) 83 - (-71) (iv) 43-(-89)
(v) 39 – (-72) (vi) (-89)- (-12) (vii) (-81) –(50) (viii) (-32) – (-13)

14. Find integers lying between 6 and -8. Arrange them in increasing order.

15. Arrange the following integers in the ascending order:
-2, 1, 0, -3, +4, -5

16. Write five integers which are less than – 100 but greater than - 150

17. Find the integers lying between -15 and -22. Arrange them in descending order.

18. Find the sum of : (i)5 + 13+(-8)+(-9) (ii) (-24) + 20+(-14)+7
(iii) 4568+(-6235)+(77)+(-346)+74

19. Find: (i) (-10)-23-(-54)+12 (ii) 17 – (18)+24-36
(iii) 823 + (-956)-234 –(-325) (iv) 750-(-830)-235+((-450)

Day-7 **Chapter: Rational Numbers**

Make a mind map on this chapter, your mind map should have all the important topics. (It should be like a detailed overview).

1. What is the additive inverse of $\frac{-11}{23}$?

2. Choose the correct option which shows the commutative law of addition for $\frac{3}{8} and \frac{5}{9}$.

(i) $\frac{3}{8}+\frac{5}{9}=\frac{5}{9}+\frac{3}{8}$ (ii) $\frac{3}{8}+\frac{5}{9}=\frac{9}{5}+\frac{3}{8}$ (iii) $\frac{3}{8}+\frac{5}{9}=\frac{5}{9}-\frac{3}{8}$ (iv) $\frac{3}{8}+\frac{5}{9}=\frac{9}{5}+\frac{8}{3}$

3. Does the closure property of addition hold for the rational numbers $\frac{11}{15} and \frac{9}{17}$?

4. Is the commutative law of addition true for the rational numbers $\frac{3}{5} and \frac{7}{11}$?

5. Find the multiplicative inverse of $\frac{-3}{13}$

6. Which rational number is its own multiplicative inverse?

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7. What is the value of k in $\frac{5}{9} \times \frac{7}{8} = \frac{7}{8} \times k$?

8. Does the commutative law for division of rational numbers hold for $\frac{4}{9} and \frac{5}{8}$?

9. Find the rational numbers between 3 and 4.

10. Evaluate: $\left|\frac{-23}{44}\right|$

11. Arrange $\frac{-3}{4}, \frac{4}{9}, \frac{-7}{3} and \frac{5}{8}$ in an ascending order.

12. Arrange $\frac{3}{5}, \frac{4}{9}, \frac{5}{11} and \frac{6}{7}$ in ascending order.

13. Which one of the properties is shown by $\frac{2}{3}, \frac{4}{5} = \frac{4}{5} + \frac{2}{3}$

(i) Commutative (ii) Associative (iii) Identity (iv) Inverse

14. Solve: $\frac{5}{6} + \frac{-7}{12} + \frac{4}{5} + \frac{9}{10} - 5$

15. The sum of two rational numbers is $\frac{4}{11}$, If one of them is $\frac{2}{3}$, what is the other number?

16. Which rational number should be added to $\frac{3}{11}$ to get $\frac{5}{9}$?

17. Choose the correct property which justifies $\left(\frac{2}{5} \times \frac{3}{7}\right) \times \left(\frac{4}{11}\right) = \frac{2}{5} \times \left(\frac{3}{7} \times \frac{4}{11}\right)$

(i) Commutative (ii) Associative (iii) Identity (iv) Inverse

18.What is the value of $\left(\frac{7}{11} \times \frac{8}{15}\right) + \left(\frac{8}{15} \times \frac{-5}{7}\right) - \left(\frac{8}{15} - \frac{3}{4}\right)$ using the distributive property of multiplication over addition?

19. Find six rational numbers between $\frac{4}{9}$ and $\frac{2}{3}$

20. By which rational number should $\frac{4}{9}$ be divided to get $\frac{8}{11}$?

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21. If $\frac{x}{y}$ x $\frac{p}{q}$ is the _____ of $\frac{x}{y}$?

Day – 8 **Chapter: Exponents and Powers**

Make a mind map on this chapter, your mind map should have all the important topics. (It should be like a detailed overview).

1. Define square and square roots. Give example.

2. What are cube and cube roots. Give example.

3. Write the given numbers in expanded form.

a) 4,080 b) 98,200 c) 6,300

4. Write in standard form: a) 10,000 b) 1,73,200

5. Fill in the blanks:

a) a^m x _____ = a^{m+n} $b) \frac{a^m}{a^n} =$ _____ $c) a^{\circ} =$ _____

$d) a^m$ x $b^m = (ab)$—— e) (a^m)—— $= a^{mn}$

6. Express in exponential form.

a) a x a x a x a x b x b x b x b x b = _____ b) a^2 x a^2 x b^3 x b^2 x b^5 = _____

7. Evaluate: 6^{-3}

8. Express $\left(\frac{3}{4}\right)^{-3}$ as a rational number raised to a positive exponent.

9. Simplify: 2^{-3} x 2^{-9}

10. Simplify: $9^{-6} \div 9^{-4}$

11. Simplify $\left[(5)^{-3}\right]^4$ using laws of exponents.

12. Simplify $(12)^{-7}$ x $(5)^{-7}$ using laws of exponents.

13. Simplify $\frac{4^{-4}}{7^{-4}}$

14. Express 0.00005656 in standard form.

15. Which of the following numbers can be expressed in standard form as 7.02103×10^{-9}?

(i) 0.0000000702103 (ii) 0. 00000000702103 (iii) 0. 000000000702103(iv) 0. 0000000000702103

16.Express $7 \times 10^{1} + 3 \times 10^{0} + 3 \times 10^{-2} + 8 \times 10^{-3}$ in decimal form.

Day - 9

1. Simplify: $\left(\frac{2}{9}\right)^{-3} \times \left(\frac{3}{4}\right)^{-2}$ 2. . Simplify: $\left(\frac{4}{9}\right)^{-2} \times \left(\frac{3}{2}\right)^{-3}$

3. The multiplicative inverse of . $\left(\frac{-9}{28}\right)^{-13}$ with negative integral exponent is

(i) $\left(\frac{-9}{28}\right)^{13}$ (ii) $\left(\frac{-28}{9}\right)^{-13}$ (iii) $\left(\frac{-9}{28}\right)^{-13}$ (iv) $\left(\frac{-28}{9}\right)^{13}$

4. Express 23.675 in expanded form.

5. By what number should $\left(\frac{18}{8}\right)^{-5}$ be multiplied so that the product equals $\left(\frac{3}{2}\right)^{-7}$

6. By what number should $\left(\frac{5}{3}\right)^{-4}$ be divided to get $\left(\frac{25}{9}\right)^{-3}$

7. What value of $\frac{2^{-3}4^{-2}}{4^{-3}}$ 8. What is the value of $\left(\frac{7}{11}\right)^{-9} \times \left(\frac{11}{7}\right)^{-12}$

9. Evaluate: $\left(8 \times 8^{0}\right) + \left[5 \times (-1)^{231}\right] + \left[2 \times (-1)^{22}\right] + \left(4 \times 4^{-1}\right)$

10. What is the value of x in $\left(\frac{3}{5}\right)^{-3} \times \left(\frac{5}{3}\right)^{x} \div \left(\frac{5}{3}\right)^{-2} = \left(\frac{3}{5}\right)^{-3}$

11. Simplify: $\left(3^{-2} + 5^{-2}\right) \times \left(\frac{17}{15}\right)^{-2}$ 2. Simplify: $\left(4^{-2} + 3^{-2}\right) \times \left(\frac{6}{25}\right)^{-4}$

12. What is the value of $(3.78 \times 10^{-34}) \times (0.05 \times 10^{26})$?

13. What is the value of $(5.86 \times 10^{22}) + (43.65 \times 10^{21})$?

14. Simplify: $\frac{3^{-3} \times 5^{-6} \times 2^{-4}}{6^{-2} \times 15^{-3} \times 8^{-2}}$ 6. Simplify: $\left[\left\{(-5)^{-2}\right\}^{3}\right]^{-4}$

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15. Simplify: $\frac{3^{-6} \times 5^{-2} \times 7^{-4} \times a^{-5}}{a^{-2} \times 6^{-3} \times 5^{-3} \times 21^{-3}}$

8. If $x = \left(\frac{2}{5}\right)^{-4} \times \left(\frac{25}{4}\right)^{-2}$, what is the value of $(6x)^3$?

16. Simplify: $\frac{x^{-6} \times y^{-4} \times z^{-5}}{x^{-4} \times (yz)^{-3}}$

Day – 10 **Chapter: Direct Inverse Proportion**

Make a mind map on this chapter, your mind map should have all the important topics. (It should be like a detailed overview).

1. Define direct proportion with two examples.

2. Define inverse proportion with two examples.

3. Write the ratio of side of a square and perimeter of square.

4. Write the ratio of area of rectangle if its length and breadth are doubled.

5. If x varies directly as y and x = 9 when y = 25, what is the value of y when x = 45?

6. A map is drawn on the scale 1 : 5000000. Given that the scaling is done in centimetres, if the distance between two cities is 12,50,000cm, what is the distance between the two cities on the map?

7. Riti takes 15 minutes to cover 10 Km n a scooter. If she continues to ride the scooter at the same speed, in how much time will she cover 36Km?

8. Which of the following quantities vary directly with each other?

(i) Side of a equilateral triangle and its perimeter

(ii) Speed and time for a given distance

(iii) Number of pipes and the time taken to fill a swimming pool. (iv) All of these.

9. If x and y vary inversely with each other and y = 0.5 when x=160, what is the value of y when x = 16?

10. Preeti takes 15 minutes to reach her school if she cycles at a speed of 12 km/h. How much time will she take if she cycles at the speed of 9 Km/h?

11. A tank can be filled by one pipe in 12 hours and by another pipe in 16 hours. How many hours are required to fill the tank if both the pipes are opened together?

12. If 55 men can build a wall in 16 days, how many men will be required to build the wall in 10 days?

13. A, B and C can complete a work in 3 days, 4 days and 6 days respectively, when they work alone in how many days will they complete the work if all the three work together?

14. If x varies directly as y^2 and x = 3 when y = 4, what is the value of y when x = 12?

Day - 11

1. A contractor pays his workers on an hourly basis. He pays a sum of Rs.32400 to 24 workers who work for 6 hours each. What sum will be required to pay 18 workers who work for 9 hours each?

2. Six cartons containing 16 books each cost Rs.52,800. What will be the cost of 9 cartons containing 14 books each?

3. Twenty-seven machines work for 55 days to produce bolts to fill a carton. If 45 machines are used to produce the bolts, in how many days can the carton be filled?

4. 1400 men can finish a stock of food in 40 days. Some more men join them and now the food lasts for only 28 days. How many more men joined the group?

5. If 20 tailors earn Rs.50,000 in 5 days, how much will 35 tailors earn in 8 days?

6. There is a 900-cm-long border. Geeta paints the border in 2 ½ days. Nitin paints one-third of the border in 1 ½ days. Who works faster?

7. A pipe can fill a tank in 10 hours. There is a hold in the tank because of which the tank takes 12 hours to fill. In how much time can the hole empty the tank?

8. Six girls ca draw 864 pictures in 9 hours. How many girls will be required to draw 64 pictures in 1 hours?

9. A and B together can complete a piece of work in 6 days. If A along could complete the work in 9 days, how many days will B take to complete the work alone?

10. A train 490 m long is travelling at a speed of 120 km/h. In how much time will it pass through a tunnel 100m long?

Day – 12 Chapter: Factorization

Make a mind map on this chapter, your mind map should have all the important topics. (It should be like a detailed overview).

1. Define factors:

2. Define factorisation.

3. Derive the identities

$a) a^2 - b^2$ b) $(a+b)^2$ c) $(a-b)^2$ d) $(a+b)^3$ e) $(a-b)^3$

$f) a^3 - b^3$ g) $a^3 + b^3$ h) $(a+b+c)^2$ i) $a^3 + b^3 + c^3 - 3abc$

$i) (x+a)(x+b)$ j) (x+a)(x+b)(x+c)

4. Factorize: 2x – 16.

5. Identify the highest common factor of $6ab$ and $36b^3$.

6. If one of the factors of the algebraic expression $(ad + bc – ac – bd)$ is $(d – c)$, then find the other factor.

. Which identity is appropriate to factorise $64a^2 – 81b^2$?

(i) $(x + y)^2 = x^2 + 2xy + y^2$ (ii) $(x – y)^2 = x^2 – 2xy + y^2$ (iii) $x^2 – y^2 = (x + y)(x – y)$

(iv) None of these.

8. Which identity is appropriate to factorise $9x^2 + 42xy + 49y^2$?

(i) $(a + b)^2 = a^2 + 2ab + b^2$ (ii) $(a – b)^2 = a^2 – 2ab + b^2$ (iii) $a^2 – b^2 = (a + b)(a – b)$

(iv) None of these.

9. Let $A = (p + q)$ and $B = pq$.

Which of the following expressions can be factorised as $(x + p)(x + q)^2$?

(i) $x^2 – Ax + B$ (ii) $x^2 + Ax + B$ (iii) $x^2 – Ax – B$ (iv) None of these.

10. Which method can be used for factorisation of an algebraic expression?

(a) Taking out a common factor (b) Using identities (c) Regrouping the terms.

(i) Only (a) (ii) Only (a) and (b) (iii) Only (b) and (c) (iv) (a), (b) and (c)

11. Factorize: $4x(5y+8)+7(5y+8)$

(i) $(4x+7)(5y+8)$ (ii) $(4x+7)(5y-8)$ (iii) $4x(5y+8)$ (iv) $(5y+8)$

12. Which of these is the simplified form of $(x + 4)(x – 3)$?

(i)x^2+x-12 (ii) $x^2+4x+12$ (iii) x^2-3x+8 (iv) $x^2 + 2x – 8$

13. To factorise the expression $x^2 – 4x – 5$, which is the correct way to split the middle term?

(i) $x^2 + 4x + x - 5$ (ii) $x^2 – 5x + x – 5$ (iii) $x^2 – 4x – x - 5$ (iv) All of these.

14. Find the error in $a + 5a + 4a = 10a$. Find the correct answer.

Day - 13

1. Identify the highest common factor of $25xy^3$ and $125xyz^3$.

2. Factorise: $a^3x – a^2(x – y)-a(y-z) –z$

3. Which identity is appropriate to factorise $\frac{9}{16}x^6y^4 – \frac{25}{49}x^4z^4$?

(i) $(a+b)^2=a^2+2ab+b^2$ (ii) $(a-b)^2=a^2-2ab+b^2$ (iii) $a^2 – b^2=(a+b)(a-b)$ (iv) None of these.

4. If one of the factors of the algebraic expression $(15x^2 + 14x-8)$ is $(3x – 4)$, then find the other factor.

5. Factorise: $x^{16} – y^{16}$

6. Factorise: $28x^{16}y^6 – 16x^{13}y^8$

7. To factorise the expression x2 – 5x – 36, which is the correct way to split the middle term?

(i) $x^2 – 9x – 4x – 36$ (ii) $x^2 + 9x + 4x – 36$ (iii) $x^2 – 8x + 4x – 36$ (iv) All of these.

8. Which of these is an appropriate method to factorise $28xy – 16x – 49y + 28$?

(i) By regrouping the terms (ii) Using identities
(iii) Taking out a common factor (iv) None of these.

9. Which of these is the simplified form of $(a + 6) (a – 3) – 14$?

(i) $a^2 +6a – 18$ (ii) $a^2 + 3a – 32$ (iii) $a^2 – 3a + 32$ (iv) $a^2 – 6a + 4$

10. Which of these is the most appropriate method to factorise $a^3b^4 + 3a^4b^5 – 5a^3b^2$?

(i) By regrouping the terms (ii) Using identities

(iii) Taking out a common factor (iv) None of these.

11. Spot the errors and find the correct answer: $3(x – 5) = 3x – 5$

DAY -14 **Chapter: Mensuration**

Make a mind map on this chapter, your mind map should have all the important topics. (It should be like a detailed overview).

1. Define Mensuration.
2. Write the area of square.
3. Write the area of rectangle.
4. Write the area of triangle.
5. Write the area of equilateral triangle.
6. Write the area of trapezium.
7. Write the area of parallelogram.
8. Write the area of circle.
9. Write the total surface area of cube.
10. Write the surface area of 4 walls of a cube.
11. Write the lateral surface area of cuboid.
12. Write the total surface area of a cuboid.
13. Write the volume of cuboid.
14. Write the area of hemisphere.
15. Write the curved surface area of cylinder.
16. Write total surface area of cylinder.
17. Find the area and perimeter of square of side 9 cm.
18. Find the area and perimeter of rectangle whose length 5cm and breadth 10cm.
19. Find the area of circle and perimeter of circle of diameter 14cm.
20. If side of equilateral triangle is 4cm. find the area and perimeter.

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DAY 15

1. Find the length and perimeter of a rectangle whose area is 768 sq. cm and breadth is 24cm.

2. The diagonal of a square is 72cm long. Find its area.

3. Find the area of a parallelogram whose base is 16cm and height is 5cm.

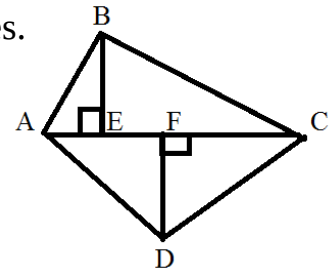
4. The three sides of a triangle measure 16cm each. Find its area.

5. The Area of a trapezium is 330 cm^2. If one of the parallel sides is 35cm and the distance between the parallel sides is 12cm, find the length of the other parallel side.

6. The area of a trapezium is 980 cm^2. If the lengths of the two parallel sides are 40cm and 30cm, respectively, find the distance between the two parallel sides.

7. Find the area of the given quadrilateral,

with AC = 16cm, BE = 4cm, and DF = 7cm.

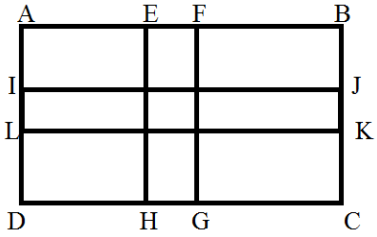


8. Find the area of the rhombus whose diagonals are of lengths

17cm and 25cm, respectively.

9. If the area of the rhombus is 240 cm^2 and one of the diagonals is 32cm, find the other diagonal.

10. A rectangular piece of land is 70m by 40m. It has two roads, each 4m wide running in the middle of it, one parallel to its length and the other parallel to its breadth. Grass has to be planted on the area other than that taken up by the path. Find the cost of planting the grass at Rs.8 per sq.m.



DAY - 16

1. Find the total surface area of a cuboidal box measuring 25cm by 40cm by 12cm.

2. If the total surface area of a cube is 864 cm^2, what is the measure of its side?

3. The curved surface area of a cylinder is 1584 sq.m and the diameter of the base is 18m. Find its height.

4. A rectangular water tank is 30m by 20m by 10m. How many litres of water can it hold?

5. Find the volume of a cylinder whose height is 20m and total surface area is 2092 sq.m.

6. A cylindrical tank can hold 5632 kL of water. Find the height of the tank if the radius of the base is 8m.

7. A box is 32cm long, 20cm wide, and 12cm high is open at the top. Find the cost of painting it at Rs.22 per sq. m.

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8. A cube of side 5m is cut into cubes of sides 1m. Find the total surface area of the smaller cubes.

9. Find the radius of a cylinder which has the curved surface area of 2200sq.m and height 25m.

10. The length and height of a cuboid are 3 feet and 15 feet, respectively. If the volume of the cuboid is 450 cubic feet, what is the width of the cuboid?

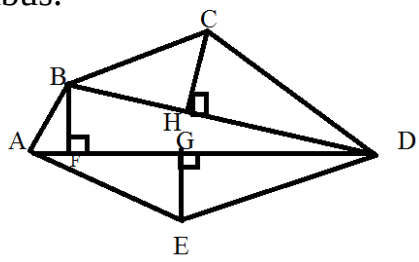
DAY - 17

1. A rhombus has sides measuring 10cm and altitude is 8cm. If one of the diagonals is 12cm, find the other diagonal and also the area of the rhombus.

2. Find the area of a regular hexagon with side 6cm.

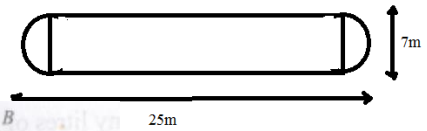
3. Find the area of the polygon, given BF = 3cm,

CH = 4cm, EG = 5cm, AD = 28cm, and BD = 22cm.

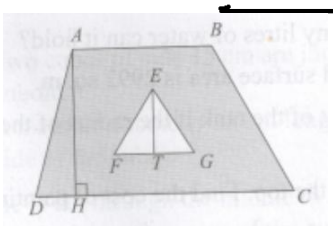


4. The cost of levelling a square lawn at Rs.20 per sq.m is Rs.69620. Find the cost of fencing the lawn at Rs.15.50 per m.

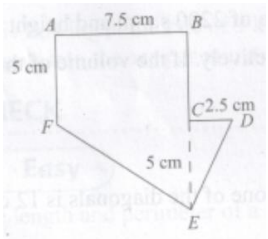
5. Find the area and the perimeter of the figure alongside



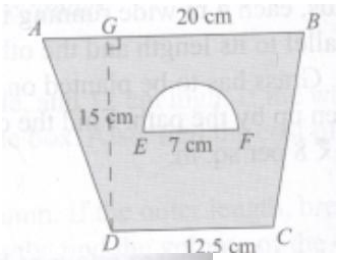
7. Find the area of the shaded region if AB = 28cm, CD = 52cm, AH = 28cm, ET = 12cm, and FG = 16cm.



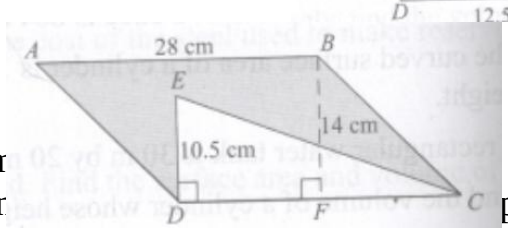
8. Find the area of the enclosed region.



9. Find the area of the shaded region.

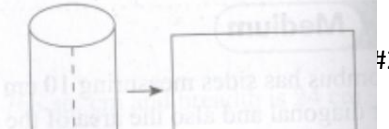


10. Find the area fo the shaded region.



DAY - 18

1. A rectangular cardboard measures 50cm is cut off from each corner and the cardboard sheet is turn p the edges. Find the total surface area of the box.



2. A hollow cylinder of height 60cm and lateral surface area 13,200 sq.cm is cut along its height. Find the perimeter of the rectangular sheet thus formed.

3. The sides of a cuboid are in the ratio 2 : 3 : 4 and its total surface area is 832 sq.cm. Find the sides of the cuboid.

4. Find the total surface area of a 17 inch long hollow cylindrical pipe whose inner diameter is 9 inches and outer diameter is 10 inches.

5. A cuboidal carton measures 15cm by 25cm by 40cm. How many cubes of side 5cm can be placed inside it?

6. A metal container in the shape of a cylinder is open at both ends. It is 56m long and its thickness is 0.5m. The outer diameter of the container is 16m. Find the weight of the cylinder if the metal it is made of weights 12 Kg. per m^3

7. Two identical cubes are placed side by side. If the total surface area of the cuboid thus formed is 250sq.cm, find the volume of the single cube.

8. A fort has 120 pillars running along its periphery. If each pillar is 35 feet high with a diameter of 1.25 feet, find the cost of polishing al the pillars at the rate of Rs.60 per sq. feet.

9. A hall measures 21m by 30m. The cost of painting its four walls at the rate of Rs.75 per sq.m is Rs.30,600. What is the height of the hall?

10. A school has to give away 120 prizes on the Annual Day to its meritorious students. The prizes are in boxes measuring 12 inches by 8 inches by 4 inches. All the prizes need to be gift wrapped using paper of width 16 inches. If each sheet is 24 inches long and there is no wastage, how many such sheets are required?

Day 19. Chapter: Understanding Quadrilaterals

Make a mind map on this chapter, your mind map should have all the important topics. (It should be like a detailed overview).

1. Define quadrilateral.
2. Mention the kinds of quadrilateral.
3. Write the properties of parallelogram.
4. Write the properties of kite.
5. Write the properties of trapezium.
6. Write the properties of square.
7. Write the properties of rectangle.
8. Construct a quadrilateral ABCD, AB = 3.5 cm. BC = 3cm. CD = 5cm. AD = 4.5cm. and $\angle A = 70°$
9. Construct quadrilateral ABCD AB=5 cm. BC = 7cm. CD = 6cm. DA = 6cm. BD = 6cm.

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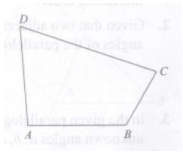
10. Construct a parallelogram with two adjacent side of length 7cm and 5 cm respectively and the angle between them is $60°$.

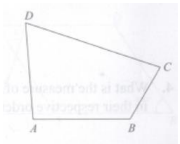
11. Fill in the blank. A quadrilateral has _____ interior angles.

12. In the given quadrilateral, which of the following is a pair of adjacent sides?



(i) DC, AB (ii) DA, AB (iii) AD, BC (iv) DB, AC

13. In the given quadrilateral, which of the following is a pair of adjacent angles?



(*i*)$\angle DAB, \angle ABC$ (ii) $\angle$DAB,$\angle$DCB

(iii) $\angle$CDA, $\angle$CBA (iv) $\angle$DCB,$\angle$BAD

14. If three angles of a quadrilateral are $105°$, $93°$, and $85°$, what is the measure of the fourth angle?

15. Choose the correct option for the give statement.

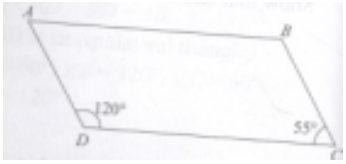
'The diagonals of a rhombus are equal'

(i) True (ii) False (iii) Cannot say (iv) Data insufficient.

16. One angle of a rhombus is $75°$. What is the measure of the other three angles in increasing order?

17. In a parallelogram, one of the angles measures $95°$. What is the measure of the other three angles in decreasing order?

18. Choose the correct option whether the given quadrilateral is a parallelogram.



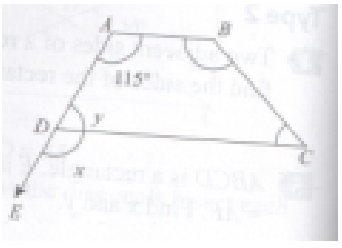
(i) Yes (iii) No (iii) Not sure (iv) May be.

19. Which of the following are properties of a square?

(i) All sides are equal. (ii) Each angle is a right angle. (iii) The diagonals are equal. (iv) All of the above.

20. In an isosceles trapezium, two opposite sides are parallel and _____.

21. Given that AB and CD are the two parallel sides of the trapezium ABCD, what is the measure of the unknown angles x and y?



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22. Choose the correct option for the given statement.

ABCD is a parallelogram with $\angle D = 80°$ and $\angle B = 100°$

(i) True (ii) False (iii) Cannot say (iv) Data insufficient.

DAY 20

1. The angles of a quadrilateral are in the ratio 1 : 2 : 3 : 4. What is the measure of each angle in increasing order?

2. Given that two adjacent angles of a parallelogram are in the ratio 1 : 5, what is the measure of the angles of the parallelogram in increasing order?

5. PQRS is a parallelogram where $\angle P$ is an obtuse angle. PA and PB are perpendiculars from P and SR and RQ, respectively. If $\angle BPQ = 50°$, what is the measure of the unknown angles of the parallelogram?

6. PQRS is a rhombus. If $\angle PRQ = 35°$, what is the measure of $\angle PSQ$?

7. Two adjacent sides of a rectangle are in the ratio 4 : 7. If the perimeter of the rectangle is 198cm, what is the length of the sides in increasing order?

8. ABCD is a parallelogram with $\angle A = (2x - 10)°$ and $\angle B = (20+3x)°$.
What is the value of x?

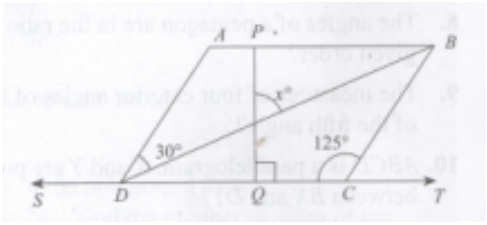
9. Two opposite sides of a parallelogram are (2x – 5) cm and (40 = 3x)cm, respectively. The side adjacent to the one measuring (2x – 5) cm is 10cm. What is the perimeter of the parallelogram?

10. Which of the following is true?

(i) Opposite sides are parallel in a trapezium. (ii) Opposite sides are equal in a kite.

(iv) Opposite angles are equal in a trapezium (iv) None o the above.

11. given that ABCD is a parallelogram, what is the value of x?



Day – 21 Chapter: Linear equations in one variable

Make a mind map on this chapter, your mind map should have all the important topics. (It should be like a detailed overview).

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1. Define algebraic coefficient and literal coefficient.

2. Define algebraic expression with a example.

3. Define monomial. Give example. 4. Define binomial. Give example.

5. Define trinomial. Give example. 6. Define quadrinomial. Give example.

7. Define polynomial. Give example.

8. Write tree diagram for the polynomial. (i) $4x^2 - 9xyz + 16ab$ (ii) $abc + 4xy - 3mn$.

9. If the value of x = -2 find 4x + 5, x – 7, 9x + 7.

10. Find the value of x (i) x + 5 = 3 (ii) 0 = 4x – 8. (iii) 9x = 81 + 9.

11. Add: (i) 3mn, -5mn,8mn,-4mn (ii) 5m – 7n, 3n – 4m + 2, 2m – 3mn – 5

12. Subtract: (i) 6xy from -12xy (ii) 10x – 5 from 5x – 10.

13. Multiply: (i) (x + 2)4x (ii) (x+ 1) $(1 + x + x^2)$

14. The sum of two rational numbers is $\frac{11}{12}$. If one number exceeds the other by $\frac{5}{12}$, find the two rational numbers.

15. Gita is 51 years younger than her grandmother. Also, her grandmother is 24 years older than her mother. The sum of the ages of all three of them is 93. Identify their present ages.

16. The sum of the digits of a two-digit number is 10. If the digits are reversed, then the new number is 36 more than the original number. Identify the two-digit number.

17. Rohan divided Rs.6000 between his two sons such that 30% of what the elder son received in equal to 15% of what the younger son received. Find the amounts received by both the sons.

18. Ritu's age is thrice the age of Lata. Eight years ago, Ritu's age was 4 times the age of Lata. Find their present age.

19. Ashu has Rs.165 in the form of Re.1 and Rs.2 coins. If the number of two-rupee coins is twice the number of one-rupee coins, how many coins of each denomination does she have?

20. The denominator of a fraction is 2 more than the numerator. If 3 is added to both, the numerator and the denominator, the fraction becomes $\frac{3}{4}$. What is the fraction?

21. Solve: 4(2x + 4) – 2(2x – 9)=22 22. Solve: 8x + 3 = 5 (x – 3) + 9

23. Solve: $\frac{x}{5}-3=\frac{x}{4}-8$ 24. Solve $\frac{x-2}{2x-4}=8$ 25. Solve: $\frac{8y-4}{2+(y-2)}=9$

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Day - 22

1. Anu thinks of a rational number and subtracts $\frac{2}{5}$ from it. She multiplied the result by 6 and obtains a number that is 3 more than 5 times the original number. Find the number that she thought of.

2. Mukesh has to deliver a set of 27 fragile glasses to his customer. His customer promises to pay him Rs.5 for every glass he delivers without breaking it but fines him Rs.3 for every glass he breaks. If he receives Rs.79, find how many were delivered intact and how many were broken?

3. The tens digit of a two-digit number is 3 times the ones digit. The sum of the original number and the number obtained by reversing the digits is 132. What is the two-digit number?

4. In a school, 45 students participated in a competition. All the winners got Rs.300 each. Also, each participant who did not win get a participation prize of Rs.50. If the organizers gave Rs.5000 as prizes, find how many students got participation prize and how many were winners.

5. Two cars start from two respective points 600 km apart towards each other at the same time. The speed of one car is 4km/h less than the other. After four hours, the distance between them is only 16km. What are their respective speeds?

6. There are Rs.2,50,000 in the denominations of Rs.100 and Rs.500 notes in the cash box of a shop at the end of the day. If the ratio of Rs.100 and Rs.500 notes is 5 : 9, how many notes of each denomination are there in the cash box?

7. Two cars start from the same point in opposite directions. One car travels at the speed of 90 km/h and the other at 75 km/h. After how many hours will they be 495 km apart?

8. Find the value of x, given that the lines *l* and *m* are parallel.

9. 40 Kg. of an alloy of lead and tin contains 25% lead. How much lead needs to be melted and added into it so that the alloy can have 40% lead?

10. Solve: $\frac{2x-(x+6)}{2x+5}=9$

11. Solve $11x + 8 = 4(2x - 3) + 2$

12. Solve: $\frac{3a}{8}+4=\frac{2a}{5}-9$

13. Solve: $\frac{2}{3}(5x-2)-\frac{1}{4}(3x-2)=\frac{3}{4}+2x$

14. Solve $4-\frac{1}{2}(2x+5)=\frac{2}{3}(x-4)$

Day 23 **Chapter: Squares and Square roots.**

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Make a mind map on this chapter, your mind map should have all the important topics. (It should be like a detailed overview).

1. Is 872342 a perfect square?

2. Find the digit at the ones place of $(3764)^2$.

3. Fill in the correct words.

The square of an even number is _____ whereas the square of an odd number is _____.

4. If 13, 12, and m form a Pythagorean triplet, then find the value of m.

5. What is the square root of 72,900?

6. Find the square root of 15876.

7. What is the number of digits in the square of 2131?

8. The product of two positive numbers is 1296. One number is 9 times the other. What are the two numbers?

9. What square number will we get if we add 1th and 13^{th} triangular numbers?

10. What is the number of digits in the square root of 131044?

Day 24

1. If 13^2 is expressed as the sum of two consecutive integers, then what are the two integers?

2. If 121 is expressed as the sum of 11 numbers, then which of these is correct?

(i) 2(2+4+6+8+10+12+14+16+18+20)+8

(ii) 3(2+4+6+8+10+12+14+16+18+20)+10

(iii) 3(1+2+3+4+5+6+7+8+9+10)+9

(iv) 2(1+2+3+4+5+6+7+8+9+10)+11

3. What is the value of n in $1+3+5+7+.....+25=n^2$?

4. How many numbers are there between 40^2 and 41^2?

5. Find the square root of 0.002025.

6. What is the smallest number by which 8192 must be multiplied to make it a perfect square? What is the square root of the perfect square thus obtained?

7. The sides of a rectangle are in the ratio 3 : 2. If the area of the rectangle is 5400 sq.cm, what are the sides of the rectangle?

8. A total of 1849 students are seated in an auditorium in such way that the number of students in a row is same as the number of students in a column. How many rows are there in the auditorium?

9. Find the Pythagorean triplet with 12 as one of its members.

10. Observe the adjacent pattern:

$7^2 = 49$
$67^2 = 4489$
$667^2 = 444889$

What is the square of 66667?

11. Observe the pattern given below:

$5^2 = (0 \times 1) \times 100 + 25 = 25$
$15^2 = (1 \times 2) \times 100 + 25 = 125$
$25^2 = (2 \times 3) \times 100 + 25 = 625$

What is the value of 125^2?

Day 25

1. Which of these is true for any number n?

(i) $n^2 = 2(1 + 2+3+.....+n-1)+n$ (ii) $n^2 = (n -1)(n+1)+1$
(iii) $n^2 = 2(n-1)^2 – (n-2)^2 + 2$ (iv) All of these

2. Observe the pattern given below:

$1^2 – 0^2 = 1$ $2^2 – 1^2 = 3$ $3^2 – 2^2 = 5$ What is the value of $13^2 – 12^2$?

3. Observe the pattern given below:

$2^2 -0^2 = 4$ $3^2 – 1^2 = 8$ $4^2 – 2^2 = 1^2$ What is the value of $14^2 – 12^2$?

4. What is the smallest square number that is divisible by each of the numbers, 6, 10 and 20?

5. The approximate distance between the Earth and Sun is 1.5×10^8 Km. Find the square of this distance and write this is standard form.

6. What is the smallest number that should be subtracted from 4134.05 to get a perfect square? What is the square root of the number obtained after subtraction?

7. What is the smallest number that needs to be added to 302.8242 to make it a perfect square?

8. Preeti and Nisha start from the same point, Preeti moves towards North and Nisha towards east. After Nisha has covered 8 km, the shortest distance between them is 10Km. How much distance has Preeti covered?

9. What is the largest five-digit number that is a perfect square?

10. What is the smallest four-digit number that is a perfect square?

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11. The area of a square field is 8100 m2. A man walks along the boundary at 24 m/min. In how much time will he complete three rounds of the field?

12. Prove that if m is an odd number greater than 1, then $\left(\frac{m^2+1}{2}\right)^2 = \left(\frac{m^2-1}{2}\right)^2 = m^2$

13. Find the value of $\sqrt{900} + \sqrt{0.0009} + \sqrt{0.09} + \sqrt{0.000009}$

Day: 26. **Chapter: Comparing quantities.**

1. What is percentage? Give one example.

2. Convert the fractions into percentage.

a) $\frac{7}{25}$ b) $\frac{4}{23}$ c) $\frac{1}{2}$ d) $\frac{2}{5}$

3. Convert percentage into fraction. a) 45.5% b) 62% c) 0.25% d) 75%

4. What is the use of percentage?

5. What is profit? Give example.

6. What is loss? Give example.

7. What is discount? Give example.

8. A person buys 10 eggs for Rs.8 and sell 8 eggs for Rs.10. Find his gain or loss percent.

9. What is simple interest? Write the formula.

10. What is amount? Write the formula.

11. Gain = Selling Price - _____.

12. Loss = Cost price - _____.

13. Gain % = (gain / _____ x 100).

14. Loss % = (Loss / _____ x 100).

15. Find amount to be paid at the end of 3 years in each case.

a) Principal = Rs.1200 at 12% p.a. b) Principal = Rs.7500 at 5% p.a

16. Convert 35/25 in %.

17. Convert 0.02 in %.

Day - 27

1. Raman had Rs.520 with him. He spent 32% on a pizza. How much money is he left with?

2. Geeta is travelling from Mumbai to Pune. She has covered 55% of the journey and Pune is still 72 Km away. How far is Pune from Mumbai?

3. Punit spends 20% of his pocket money on fast food and 15% on movies. If he spend Rs.161 on these two items, what is his pocket money?

4. Arti spends 24% of her income on house rent and 20% on food. If she is left with Rs.24080, find her income.

5. The weight of a baby increased from 3 Kg. to 4 Kg. in one month. What is the percentage increase?

6. A shopkeeper sold 360 shirts in a week, which was 18 more than the number he sold the previous week. Find the percentage increase in the sales.

7. A refrigerator of an old model is sold at Rs.16800 at a loss of 7%. Find the cost price of the refrigerator.

8. Ayushi bought a second-hand table for Rs.2800. She spent Rs.350 in getting it repainted and then sold it for Rs.3654. Find the gain per cent.

9. Ragini bought 15 dozen roses at Rs.100 per dozen. She sold 10 doze roses at Rs.15 per rose. By now, roses started to turn brown. So she sells the remaining roses at Rs.8 per rose. Find the loss or gain per cent.

10. Find discount % if MP = Rs.1800 and SP=Rs.1710.

Day - 28

1. Find MP if SP=Rs.3168 and discount = 12%.

2. Madhu bought some articles for Rs.13,500, if GST is 12%, find the amount Madhu has to pay.

3. Find the compound interest on Rs.5000 at 4% per annum for 3 years compounded annually.

4. Find the compound interest on Rs.8000 at 12% per annum for two years compounded annually.

5. A machine worth Rs.9000 is depreciating at the rate of 10% every year. Find its value after three years.

6. A video rental store increased the rent by 20%. After six months, it again increased the rent by 20%. What was the net increase in rent by the store?

7. The price of onions increased by 30%. Next month the price decreased by 30%. What is the net increase or decrease per cent in the price of the onions?

8. Find SP, if MP = Rs.15,750, discount is 5%, and GST is 12%.

9. Angad buys 8 plants for Rs.1200 and sells them at the rate of 14 for Rs.2380. Find the profit or loss per cent.

10. If Isha sells her bag for Rs.2040, she suffers a loss of 15%. At what price should she sell the bag if she wishes to make a profit of 12%.

Day - 29

1. Sakshi buys 6 dozen bulbs for Rs.1560 per dozen. She sells 3 dozen at the rate of Rs.1638. She finds that 6 of the bulbs were defective and removes them. She then sells the remaining bulbs at the rate of Rs.1500 per dozen. Find the final profit or loss per cent.

2. Rajat bought a table for Rs.16500 and a cabinet Rs.23,750. He sold the table at a profit of 10% and the cabinet at a loss of 5%. Find the net profit or loss per cent.

3. A shopkeeper makes a profit of 15% even after offering a discount of 8%. If the marked price of the article is Rs.1000, find the actual cost of the article.

4. In the election for the House Captain of a house in a school between Raman and Pranav. Raman wins by 24 votes. If Pranav gets 40% of the total votes, find the number of students who voted.

5. Riti has box of sweets. She distributes 20% of the sweets. Pooja comes and distributes 15% of the remaining sweets. If a total of 80 sweets were distributed, find how many sweets were there in the box?

6. The cost price of 20 dresses is the same as the selling price of 15 dresses. Find the gain per cent.

7. In how much time will Rs.400 amount to Rs.441 at 10% per annum if the interest is compounded half-yearly.

8. In How much time will Rs.10000 amount to Rs.12100 at 20% per annum if the interest is compounded semi-annually?

9. At what rate of interest p.a will Rs.10,000 amount to Rs.12,100 compounded annually in 2 years?

10. The population of a village increased by 4% in the first year. In the second year, the village suffered from an epidemic and the population decreased by 2%. If the present population of the village is 25,480, what was its population two years ago?

11. A sum of Rs.25000 is invested at 8% p.a compounded half-yearly for 1 ½ years. Find the amount at the end of the 1 ½ years.

12. A sum of Rs.80,000 is invested at 40% p.a compounded quarterly for 1 year. Find the amount at the end of the 1 year.

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13. Two years ago, the population of a village was 8000. During the first year the population increased by 5% and during the second year it decreased by 5%. Find the present population of the village.

14. Find the principal that will yield an interest of Rs.1230 at 5% compounded annually for two years.

15. Find the amount if a sum of Rs.12,000 is compounded half-yearly for 1 ½ years at 10% per annum.

Day – 30 **Chapter: Data Handling.**

1. Define Mean, Median, Mode. 2. Write the formula to find mean of given data.

3. Find the mode of 73, 75, 76, 77, 75, 73, 75.

4. Which of these can be used to find the width of a class interval?

(i) Upper limit + Lower limit (ii) Upper limit + Lower limit + 1
(iii) Upper limit – Lower limit – 1 (iv) Upper limit – Lower limit.

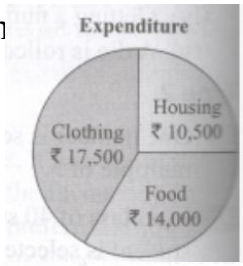
5. Which of these is true about histograms?

(i) The bars are of equal width because the graph looks attractive.

(ii) The bars are of unequal width.

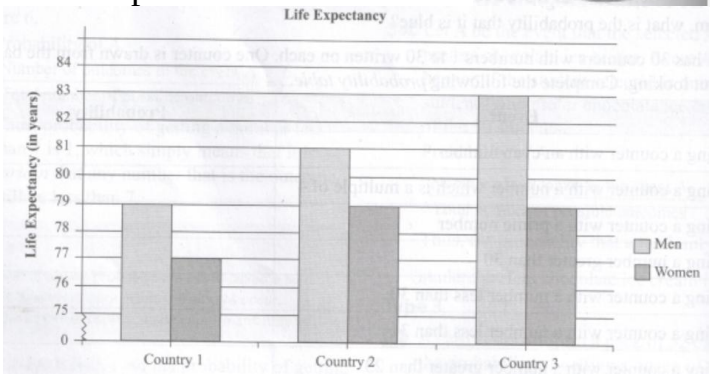
(iii) The bars are of equal width because the class intervals are of equal width

(iv) None of these.



6. The given pie chart shows the expenditure of a family on food housing, and clothing. The total amount spent by the family is Rs.42000. Find the angle of the sector representing the amount spent on food.

7. The bar graph below shows the life expectancy (in years) of men and women in three different countries.

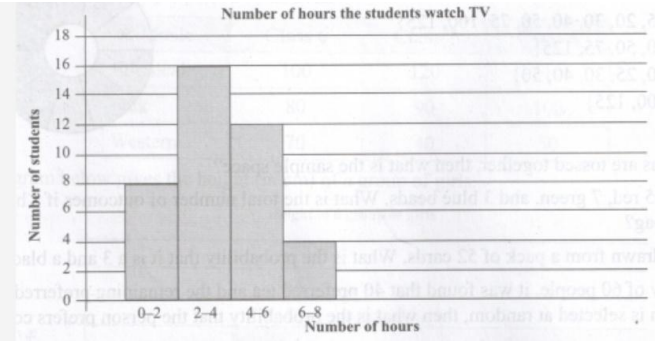


In which country the life expectancy of women is higher than men?

Country.

Grade**: 8** **Mathematics: Holiday Home Work for 30 days** **March-20**

8. The histogram below shows the number of hours the students of a class spent in watching television during the summer vacations..



Find the number of hours that the maximum number of students watch TV for.

9. The table below gives the weights of 60 people.
What is the lower limit for the class 30 - 40?

10. On a particular day, Shipra spent 6 hours studying, 3 hours playing, 8 hours sleeping and the rest of the time doing miscellaneous activities. If her entire day's activities are represented as a pie chart, what is the angle of the sector that represents the time spent o studies?

11. A set of observations is grouped into class intervals 0 – 10, 10 – 20, 20 – 30. In which interval will the observation 10 line?

12. The data below gives the marks of 15 students in an examination.

45,68,34,73,34,55,49,83,67,58,22,57,88,76,91

What is the range of the marks and the average marks?

14. The table below gives the marks of 50 students. Marks	Number of students
30-40	3
40-50	5
50-60	24
60-70	5
70-80	3

Identify the number of students who got less than 50 Marks.

15. The given figure a spinning wheel. On spinning the wheel, what is the sample space?

(i) {10,25,20,30,40,50,75,100,125}

(ii) {40,50,50,75,125}

(iii) {10,20,25,30,40,50}

(iv) {75,100,125}