Class 8 Revision Sheet

COMMERCIAL MATHEMATICS(PERCENTAGE, PROFIT AND LOSS, DISCOUNT, SALES TAX, VAT)

1. Sheila read 60% of the total number of pages in a book. The next day she read 80% of the remaining pages. If 28 of the pages of the book are yet to be read by her, find the total number of pages in the book.

2. The production of sugarcane in a state of India increases 8% annually. If the production of sugarcane in the year 2012 was 216 million tonnes, what was the production in 2011?

3. The value of a car depreciates each year by 20%. Find out its value after 2 years if its present value is Rs.350,000.

4. Marks scored by A are 25% more than that of B. By what percent are B's marks less than that of A?

5. A man spends 20% of his salary on house rent. After spending 25% of the remainder he has Rs.4800 left. What is his monthly salary?

6. Sunil purchased a hundred TV sets at Rs. 8700 per TV. He spent Rs.1000 per TV for transportation, and Rs.10,000 for advertising for all TV sets. If he sold all TV sets at Rs. 10,584 per set, find his profit or loss%.

7. A merchant lost 8% by selling an item for Rs.12,880. At what price should he sell it to gain 8%?

8. Kanta sold a sewing machine at a gain of 16%. Had she sold it for Rs.32 more, she would have gained 18%. What is the cost price of the sewing machine?

9. A farmer sold two bullocks for Rs.18,000 each. On one bullock he gained 20% and on the other he lost 20%. Find his total gain or loss.

10. A sold a phone to B at a gain of 8%, and B sold it to C at a loss of 5%. If C paid Rs. 4617 for it, how much did A pay for the phone?

11. After alolowing a discount of $7\frac{1}{2}$ % an article is sold for Rs.2775. Find the marked price of the article.

12. Find the single discount eqquivalent to two successive discounts of 20% and 5%.

13. A mixer-grinder is available for Rs.14170 inclusive of VAT. If the original price of the mixer-grinder is Rs.13,000, find the rate of VAT.

14. The price of a computer is Rs. 27,000. The sales tax charged is 12%. Find the amount that you will have to pay if you buy it.

15. If the marked price of an article is Rs.900, how much will the customer have to pay for it if the shopkeeper gives a discount of 10% and the sales tax is 5%?

Mensuration

1. The internal measures of a cuboidal room are 12m x 8 m x 4 m . Find the total cost of whitewashing all 4 walls of a room , if the cost of whitewashing is Rs 5 per sq m. What will be the cost of white washing if the ceiling of the room is also whitewashed.
Ans : Rs 800 , Rs 1280

2. The lateral surface area of a hollow cylinder is 4224 sq cm. It is cut along its height and formed a rectangular sheet of width 33 cm. Find the perimeter of rectangular sheet. Ans : 322 cm

3. A godown is in the form of a cuboid of measures 60 m x 40 m x 30 m . How many cuboidal boxes can be stored in it if the volume of one box is 0.8 cu. m. Ans : 90,000

4. A rectangular paper of width 14 cm is rolled along its width and a cylinder of radius 20 cm is formed. Find the volume of the cylinder. Ans : 17600 cu. cm.

5. If each edge of a cube is doubled , i) how many times will its surface area increase ? Ans : 4 times

Ii) how many times will its volume increase ? Ans : 8 times

6. Afield is 80 m long and 50 m broad .In one corner of the field , a pit which is 10 m long , 7.5 m broad and 8 m deep has been dug out. The earth taken out of it is evenly spread over the remaining part of the field . Find the rise in the level of the field.
Ans : 15.3 cm

7. An open rectangular cistern when measured from outside is 1.35 m long , 1.08 m broad and 90 cm deep , and is made of iron which is 2.5 cm thick. Find the capacity of the cistern and the volume of the iron used. Ans : 1171625 cu. cm , 140575 cu cm

8 . A solid cubical block of wood costs Rs 256 at Rs 500 per cu m . Find its volume and the length of each side. Ans : 512000 cu cm , 80 cm

9. An iron pipe is 21 cm long and its external diameter is 8 cm. If the thickness of the pipe is 1 cm and iron weighs 8 gm / cu cm , find the weight of the pipe. Ans : 3.696 kg

10. How many cubic metres of earth must be dug out to sink a well which is 20 m deep and has a diameter of 7 m ? If the earth so dug out is spread over a rectangular plot 28 m by 11m , what is the height of the platform so formed ? Ans : 770 cu m , 2.5 m

DATA HANDLING(Frequency distribution of grouped data, Histogram, Pie Chart)

1. The marks obtained by 40 students of a class in an examination are given below. Prepare a frequency distribution table with equal class intervals, starting from 0-5.

16,18,17,8,18,12,3,6,7,8,23,16,18,5,13,5,3,10,0,21,7,7,9,1,12,13,20,21,10,13,2,
15,23,19,24,16,2,23,5,12

2. The ages (in years) of 30 students are given below.Prepare a frequency distribution table with equal class intervals, starting from 3-6.

16,11,21,8,8,9,16,3,9,21,21,22,15,19,6,7,6,17,15,17,14,23,11,18,22,15,12,18,12,13

3. The following is the frequency distribution of weights of 40 students. Draw a histogram to represent the data:

Weight(in kg)	45-50	50-55	55-60	60-65	65-70	Total
No. of students	5	9	16	7	3	40

4. Draw a Histogram for the following frequency distribution

Monthly income(Rs.)	5000-5500	5500-6000	6000-6500	6500-7000	7000-7500
No. of workers	5	8	16	18	13

5. The number of hours spent by a school boy on various activities on a working day are given below.

Activity	School	Homework	Play	Sleep	Others
No.of hours	8	4	3	7	2

Represent the above information by a pie chart

6. The following data shows the expenditure of a person on different items during a month.Represent the data by a pie chart

Item of expenditure	Rent	Education	Food	Clothing	Others
Amount	2700	1800	2400	1500	2400

OPERATIONS ON ALGEBRAIC EXPRESSIONS INCLUDING IDENTITIES

1. Add: $4x^2-7xy+4y^2-3$, $5+6y^2-8xy+x^2$, and $6-2xy+2x^2-5y^2$

2. Subtract $4p^2+5q^2-6r^2+7$ from $3p^2-4q^2-5r^2-6$

3. The perimeter of a triangle is $6p^2-4p+9$ and two of its sides are p^2-2p+1 and $3p^2-5p+3$. Find the third side of the triangle

4. Find the product: $(x^2-3x+7)(2x+3)$

5. Find the product: $(2x^2+3x-7)(3x^2-5x+4)$

6. Divide (i) $-56mnp^2$ by $7mnp$

(ii) $(15x^2+x-6)$ by $(3x+2)$

7. Divide: $(2x^3-5x^2+8x-5)$ by $(2x^2-3x+5)$

8. Expand $\left(\frac{2}{3}a + \frac{3}{4}b\right)^2$

9. If $x+\frac{1}{x}=5$, find the values of (i) $x^2+\frac{1}{x^2}$ and (ii) $x^4+\frac{1}{x^4}$

10. Find the continued product: $(3x-2y)(3x+2y)(9x^2+4y^2)$

FACTORISATION

Factorise

(i) $ab(x^2+y^2)-xy(a^2+b^2)$

(ii) x^3-3x^2+x-3

(iii) $48a^2-243b^2$

(iv) $100-(x-5)^2$

(v) $25a^2-4b^2+28bc-49c^2$

(vi) $z^2+12z+27$

(vii) $2x^2-17x-30$

(viii) $4n^2-8n+3$

(ix) $6x^2-17x-3$

(x) $x^4+2+\frac{1}{x^4}$

SET THEORY

Q1. Which of the following are well-defined sets?

(a) All the honest members in the family.

(b) All the consonants of the English alphabet.

(c) All the tall boys of the school.

(d) All the efficient doctors of the hospital.

(e) All the hardworking teachers in a school.

(f) All the prime numbers less than 100.

(g) All the letters in the word GEOMETRY.

Q2. Write the following sets in the roster form.

(a) $D = \{x : x = 3p, p \in W, p \leq 3\}$

(b) $E = \{x : x = a^2, a \in N, 3 < a < 7\}$

(c) $F = \{x : x = n/(n + 1), n \in N \text{ and } n \leq 4\}$

(d) $G = \{x : x \in N, 3x - 2 < 5\}$

(e) $J = \{x : x \in N, x^2 < 16\}$

(f) K = {x : x is a prime number which is a divisor of 42}

(g) H = {x : x is a 2-digit natural number such that the sum of its digits is 5}

Q3. Classify the following as finite and infinite sets.

(a) The set of days in a week

(b) $A = \{x : x \in N\ x > 1\}$

(c) B = {x : x is an even prime number}

(d) C = {x : x is a multiple of 5}

(e) D = {x : x is a factor of 30}

(f) $P = \{x : x \in Z, x < -1\}$

(g) The set of all letters in the English alphabet

(h) The set of all real numbers

Q4. In a school there are 20 teachers who teach mathematics or physics. Of these, 12 teach mathematics and 4 teach both physics and mathematics. How many teach physics ?

Q5. In a group of 65 people, 40 like cricket, 10 like both cricket and tennis. How many like tennis only and not cricket? How many like tennis?
Q6. In a committee, 50 people speak French, 20 speak Spanish and 10 speak both Spanish and French. How many speak at least one of these two languages?

CONSTRUCTION OF QUADRILATERALS

1. Construct a quadrilateral LMNO in which LM = 4.2 cm, MN = 6 cm, NO = 5.2 cm, OL = 5 cm and LN = 8 cm.

2. Construct a quadrilateral PQRS in which PQ = 5.4 cm, BC = 6 cm, QR = 4.6 cm, RS = 4.3 cm, SP = 3.5 cm and BD = 5.6 cm

3. Construct a quadrilateral ABCD in which AB = 3.5 cm, BC = 3.8 cm, CD = DA = 4.5 cm and BD = 5.6 cm.

4. Construct a quadrilateral ABCD in which AB = 3.6 cm, BC = 3.3 cm, AD = 2.7 cm, diagonal AC = 4.6 cm and BD = 4 cm.

5. Construct a quadrilateral LMNO in which LN = LO = 6 cm, MN = 7.5 cm , MO = 10 cm and NO = 5 cm. Measure the remaining side.

6. Construct a quadrilateral ABCD in which AB = 3.4 cm, CD = 3 cm, DA = 5.7 cm, AC = 8 cm and BD = 4 cm.

7. Construct a quadrilateral ABCD in which AB = BC = 3.5 cm, AD = CD = 5.2 cm and ∠ABC = 120°.

8. Construct a quadrilateral ABCD in which AB = 2.9 cm, BC = 3.2 cm, CD = 2.7 cm, DA = 3.4 cm and ∠A = 70°.

9. Construct a quadrilateral ABCD in which AB = 3.5 cm, BC = 5 cm, CD = 4.6 cm, ∠B = 125° and ∠C = 60°.

10. Construct a quadrilateral LMNO in which LM = 6 cm, MN = 5.6 cm, NO = 2.7 cm, ∠M = 45° and ∠N = 90°.

11. Construct a quadrilateral ABCD in which AR = 5.6 cm, BC = 4 cm, ∠A = 50°, ∠B = 105° and ∠D = 80°.

12. Construct a quadrilateral PQRS m which PQ = 5 cm, QR = 6.5 cm, ∠P = ∠R = 100° and ∠S = 75°.

Hint: ∠Q = [360° - (100° + 100° + 75°)] = 85°.

13. Construct a quadrilateral ABCD in which AB = 4 cm, AC = 5 cm, AD = 5.5 cm and ∠ABC = ∠ACD = 90°.

(Topics covered : 1.Cube & cube root, 2. Time & work)

1. Find cube and cube root of $\frac{3.43}{10}$.
2. Find cube and cube root of $\frac{-125}{512}$.
3. Find the value of $\sqrt[3]{0.125} + \sqrt[3]{0.729}$.
4. If $a = 2b$ and $b = 4c$ then find the value of $\sqrt[3]{\frac{a^2}{16bc}}$.
5. Find cube root of $\frac{3^6 \times 4^3 \times 2^6}{8^9 \times 2^3}$.
6. Find the side of a cube having volume $a^6 \times b^9$. Can you find out the dimension of cuboid having the same volume? Explain.
7. By what least number should 121 be multiplied to get a perfect cube?
8. By what least number should 121 be divided to get a perfect cube?
9. What should be added to 121 to get a perfect cube?
10. Find the cube of -1.01.
11. A and B together can do a piece of work in 12 days and A alone can complete the work in 18 days. How long will B alone take to complete the job?
12. A and B together can do a piece of work in 12 days, B and C can do it in 15 days,C and A can do it in 20 days. How long would each of them take to complete the job?
13. 4 men or 5 women can construct a wall in 82 days. How long will it take for 5 men and 4 women to do the same?
14. A can do a piece of work in 15 days. B is 50% more efficient than A. How long will A alone take to complete the job?
15. A works twice as fast as B. If both of them can together finish a piece of work in 12 hours.How long will B alone take to complete the job?
16. A cistern can be filled by two taps A and B in 12 hours and 16 hours respectively. The full cistern can be emptied by a third tap C in 8 hours. If all the tapes are turned on at the same time, in how much time will the empty cistern be half- filled.
17. A garrison had a provision for 1500 men for 30 days. After some days, 300 more men joined the garrison. The provisions lasted for a total of 26days from the beginning . After how many days did the new men join?
18. Swaroop can do one-third of a work in 12 days. In how many days can he complete three-fourth of the work?
19. 30 men can build a wall in 50 days. How many more men are required to builds another wall, double in size, in 75 days?

20.A contractor undertook to build a road in 200 days.He employed 140 men. After 60 days he found that only one-fourth of the road could be built. How many additional men should be employed to complete the work in time?

LINEAR GRAPH

1. Write the abscissa (x-coordinate) of each of the following points:(i) (4,-3) , (ii) (-2,-5)

2. Write the ordinate (y-coordinate)of each of the following points: (i) (-2,0) , (ii) (9,-5)

3. In which quadrants do the following points lie?(i) (2,4), (ii) (-3,-2), (iii) (7,-6), (iv) (-5,2)

4. Plot the following points on a graph paper using the same pair of axes and the same scale for each

(-3,4), (2,-3), (4,5), (-8,-2), (1,2), (-4,3), (-5,-9), (3,-2)

5. Plot the following points on a graph sheet. Verify if they lie on a line: A(2,3), B(0,1), C(-2,-1), D(-3,-2)

6. Plot the following points on a graph sheet. Verify if they lie on a line:P(5,7), Q(3,5), R(2,3), S(0,3)

7. Draw the line passing through (1,2) and (2,1) . Find the coordinates of the points at which this line meets the X and Y axis

8. Draw the line passing through (1,6) and (3,2). Find the coordinatesof the points at which this line meets the X and Y axis

9. Draw the graph for the following:

Side of square(in cm)	2.5	3	3.5	4	4.5
Perimeter(in cm)	10	12	14	16	18

Is it a linear graph?

10. Revision of 'reading line graph' from NCERT .

DIRECT AND INVERSE PROPORTION

1. Find whether x and y are directly proportional

X	3.5	4	8.5	11.5
y	10.5	12	25.5	46

2. A worker is paid Rs. 1085 for 7 days. What should he be paid for 13 days?

3. The cost of 17 m of cloth is Rs.2303.50. What length of cloth can be purchased for Rs. 8401?

4. A truck is travelling at an average speed of 40 km/h. How much distance would it cover in 2hrs18min?

5. A road map shows a scale of 1 cm representing 50 km. A motorist drives on a road for 300 km. Determine his distance covered on the map.

6. A swimming pool can be filled in 8 hours by 4 equal pumps. How many such pumps are required if the pool is to be filled in 5⅓ hours?

7. If x and y vary inversely and x=15 when y=6, find y when x=10.

8. If x and y vary inversely and x=4 when y=9, find x when y=6.

9. when 100 men have provisions for 20 days, they are joined by 25 men. How long will the provision last?

10. 800 men can finish a stock of food in 60 days. How many more men should join them to finish the same stock in 40 days?

SQUARES AND SQUARE ROOTS

1. Find the square root by prime factorisation method: (i) 6084 (ii) 44100 (iii) 17424

2. Find the smallest number by which 4851 must be multiplied to get a perfect square number. Also find the square root of the square number so obtained

3. Find the smallest number by which 36125 must be divided to get a perfect square number. Also find the square root of the square number so obtained

4. Students of a class collected Rs.1225 for donation. The contribution of each student was as much as the number of students in the class. How many students were there in the class?

5. Find the square root by long division method: (i) 17161 (ii) 26569 (iii) 147.1369

6. Find the square root correct upto three decimal places: (i) 2 (ii) 7 (iii) 0.9

7. Find the square root of : (i) $\frac{289}{361}$ (ii) $1\frac{49}{576}$

8. Find the least number which must be added to 9225 to make it a perfect square. Find this perfect square and also its square root.

9. What least number must be subtracted from 893304 to get a perfect square? Find the square root of this perfect square.

10. find the least number of 4 digits which is a perfect square. Also find the square root of this number.