Brain International School

Vikas Puri, New Delhi

REVISION SHEET

SUBJECT: MATHEMATICS **CLASS-VIII** **TERM 2**

LINEAR EQUATION IN ONE VARIABLE

Q1. Solve the following equations:

$\frac{2x-9}{8} - \frac{x-1}{6} = \frac{-x}{12}$

Q2. Divide 36 into two parts in such a way that $\frac{1}{5}$ of one part is equal to $\frac{1}{7}$ of the other.

Q3. Two numbers are in the ratio 5:3. If they differ by 18, what are the numbers?

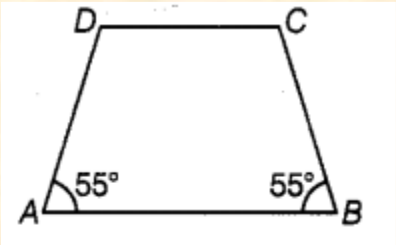
Q4. Aarushi has a total of ₹ 590 as currency notes in the denominations of ₹ 50, ₹20 and ₹ 10. The ratio of the number of ₹ 50 notes and ₹ 20 notes is 3:5. If she has a total of 25 notes, how many notes of each denomination she has?

Q5. Anushka and Aarushi are friends. They have equal amount of money in their pockets. Anushka gave 1/3 of her money to Aarushi as her birthday gift. Then, Aarushi gave a party at a restaurant and cleared the bill by paying half of the total money with her. If the remaining money in Aarushi's pocket is ₹ 1600, then find the sum gifted by Anushka.

UNDERSTANDING QUADRILATERALS

Q1. If two adjacent angles of a parallelogram are (5x – 5) and (10x + 35), then find the ratio of these angles.

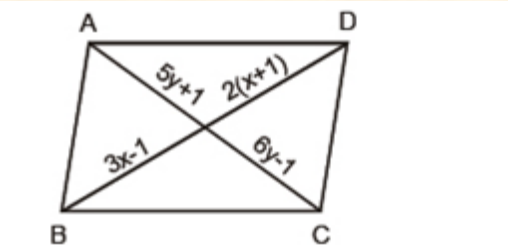
Q2. In the trapezium ABCD, find the measure of ∠D .



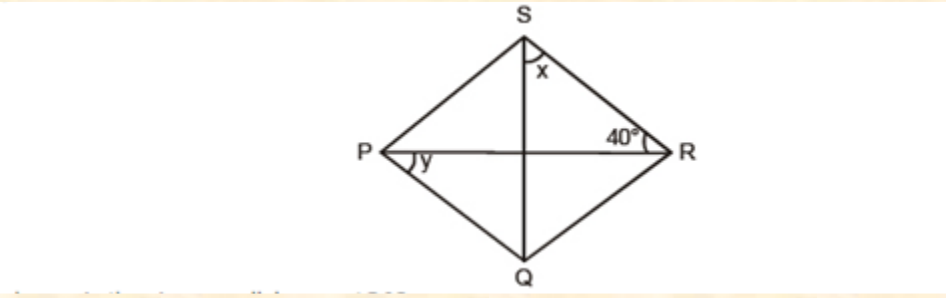
Q3. One angle of a parallelogram is of measure 70°. Find the measures of the remaining angles of the parallelogram.

Q4. Find value of x and y in the following figures.

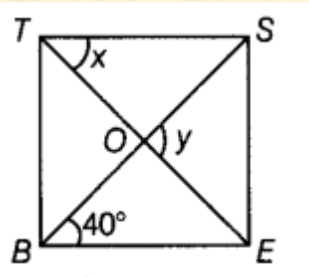
(i) where ABCD is a parallelogram.



(ii) where PQRS is a rhombus.



Q5. In the figure, BEST is a rhombus, then find the value of y – x.



COMPARING QUANTITIES

Q1. A cricket team won 10 matches out of the total matches they played. If their win percentage was 40, then how many matches did they play in all?

Q2. The value of a machine worth ₹ 1,25,000 keeps depreciating at the rate of 10 % per annum. What would be its value after 3 years?

Q3. Find the principal that would yield an interest of ₹ 1891.50 in 3 years at the rate of 5% per annum compounded annually.

Q4 .In how many years will ₹ 8000 amounts to ₹9261 at 5 % per annum compound interest?

Q5. Kartik bought a refrigerator and an electric iron in 2015.

a) A refrigerator cost ₹22,800 including VAT at the rate of 14%. Find the actual price of the refrigerator.
b) The sale price of an electric iron was ₹1950 and its price before the tax is added was ₹1800. Find the rate of VAT.

EXPONENTS AND POWERS

Q1. Simplify using laws of exponents:

a) $\left(\frac{5}{17}\right)^{-14} \times \left(\frac{5}{17}\right)^{-8} \div \left(\frac{5}{17}\right)^{-16} \times \left(\frac{5}{17}\right)^{-6}$

b) $\frac{(-3)^{-4} \times (-2)^{6} \times 7^{4}}{4^{5} \times (-49)^{2} \times 9^{-2}}$

c) $\frac{4.48 \times 10^{24} \times 1.6 \times 10^{-8}}{2.24 \times 10^{-12} \times 0.000016}$

d) $\frac{(-16)^{-3} \times 3^{-4} \times 28^{6} \times (-3)^{8}}{(-9)^{4} \times 49^{3} \times 4^{-4}}$

e) $3^{45} \times 3^{25} - 3^{28} \times 3^{42}$

Q2. Find a , if $2^{a+2} + 2^{2} = 8$.

Q3. Write the standard form of 5,84,60,00,000.

Q4. Find the sum of 3.5×10^{5} and 1.65×10^{6}.

Q5. Find the value of 3^{-7} and 9^{2}.

MENSURATION

Q1. Find the area of the parallelogram PQRS in which PQ is 15.2 cm and altitude ST is 8.2 cm . Find the altitude if QR =8.6 cm is taken as the base.

Q2. Find the area of a rhombus of side 17 cm and one of its diagonals is 16 cm long.

Q3. The roof of a building is supported by four identical cylindrical pillars. The curved surface area of each pillar is 41.8 m^2. If the height of each pillar is 9.5 m , find the diameter of each pillar. Find the cost of painting the pillar at ₹65 per m^2.

Q4. Find the number of cubical wooden blocks of side 1.5 cm that can be packed in a carton 30 cm long, 30 cm wide and 15 cm high.

Q5. A rectangular piece of paper 44cm long and 33cm wide is made into a cylinder by rolling it along its width.

a) Find the volume of the cylinder so formed.
b) If the paper is rolled along the length , what will be the volume?
c) Will the surface areas be same in the above two cases?

DIRECT AND INVERSE PROPORTIONS

Q1. A train is 400m long and it runs at a speed of 81 km/h . How many will it take to travel past a tunnel which is 590 m long ?

Q2. A stack of 1071 sheets of paper is 6.3 cm thick.

a) What will be the thickness of a stack of 15000 sheets?
b) How many sheets will be there in a stack of 15 cm thick?

Q3. A field can be cleared by 33 men in 15 days. How many more men will be required if the field has to be cleared 4 days earlier?

Q4. A charity organization is providing vocational and skill development training to unemployed youth in a village . Alok, one of the trained youths , can complete the wiring of a training hall in 12 days, while Anil, another trainee , can complete the same work in 18 days. If both of them work together to finish the project , how many days they will take?

Q5. With one bag of flour,81 loaves of bread each weighing 750 g can be made. With the same quantity of flour, how many loaves of bread , can be made each weighing 450g?

FACTORISATION

Q1. Factorise the following:

$m^2 – 12\ mn – 28n^2$

Q2. Factorise the following polynomials.

(a) $6p(p – 3) + 1\ (p – 3)$

(b) $14(3y – 5z)^3 + 7(3y – 5z)^2$

(c)$25x^2 – 4y^2 + 28yz – 49z^2$

Q3. Factorise the given expressions and divide that as indicated.

(a) $39n^3(50n^2 – 98\ ) \div 26n^2(5n – 7)$

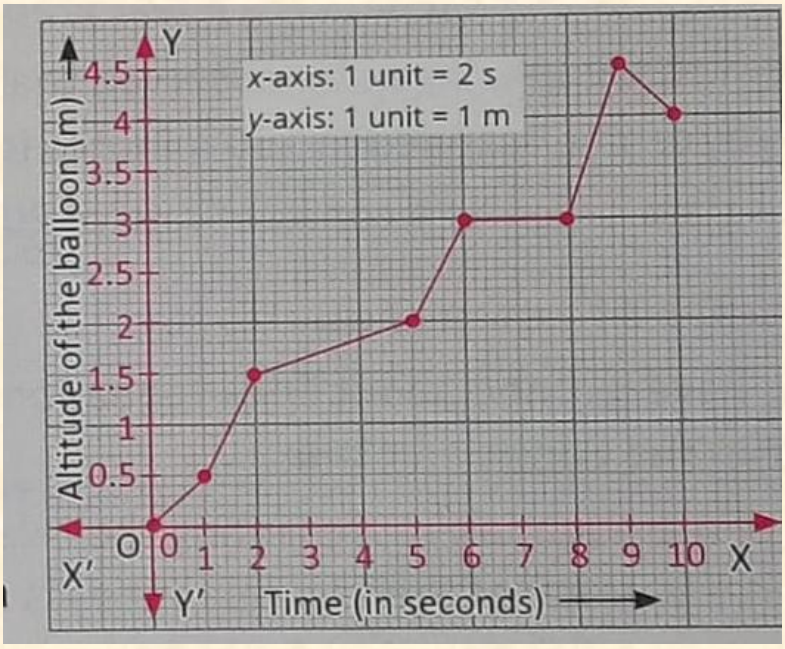
(b) $44(p^4 – 5p^3 – 24p^2) \div 11p(p – 8)$

Q4. If one of the factors of $(5x^2 + 70x – 160)$ is $(x – 2)$. Find the other factor.

Q5. The area of a right angle triangle is $(x^2-4x – 60)\ cm^2$. Find the height of the triangle if the base is $(x+6)$ cm.

INTRODUCTION TO GRAPHS

Q1 Study the following graph that shows the altitude reached by a hot air balloon and answer the given questions:



a) What was the altitude of the ballon at 2s?
b) At what time did it reach an altitude of 2m?
c) During which time period did it descend?
d) What was the maximum altitude reached?
e) During which time period did the balloon maintain a constant altitude?

Q2. The table shows the distance from a post office to various areas a postman cycles to deliver the letters and the delivery time. Represent the information by a line graph.

Distance (km)	10	12	14	18	21
Time of the day	10 a.m	10.30 a.m	11 a.m	11.30 a.m	12 noon

Q3. Plot the following points on a graph sheet. Verify if they lie on a line:

(a) A(4,0), 8(4, 2),C{4,6), 0(4, 2.5)

(b) P(1,1), Q(2, 2), R(3,3), 5(4, 4)

(c) K(2, 3), L(S, 3), M(S,5), N(2, 5)

ASSERTION AND REASONING BASED QUESTIONS

DIRECTION: In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

a) Both Assertion and Reason are true and Reason is a correct explanation of Assertion.

b) Both Assertion and Reason are true but Reason is not a correct explanation of Assertion.

c) Assertion is true but Reason is false.

d) Assertion is false but Reason is true.

Q1 **Assertion (A):** The equation $2x+3=7$ is a linear equation in one variable.

Reason (R): A linear equation in one variable can be written in the form $ax+b=0$, where a and b are constants and $a \neq 0$.

Q2 **Assertion (A):** The solution of the equation $3x-9 = 0$ is $x = 3$.

Reason (R): To solve a linear equation, we isolate the variable on one side.

Q3. **Assertion (A):** $25 \times 23 = 215$.

Reason (R): For any integers a, m and n, we have $am \times an = am+n$.

Q4. **Assertion (A):** $(-10) \times (-10) \times (-10) \times (-10) = 10\text{-}4$.

Reason (R): For any integer a, we have $a \times a \times a \times \ldots$ n times $= an$.

Q 5. **Assertion (A):** Factorisation of $4x2 + 9y2$ is $(2x - 3y)(2x + 3y)$.

Reason (R): $a2 - b2 = (a - b)(a + b)$

Q 6. **Assertion (A):** The ratio of 5 cm to 1 m is 1:20.

Reason(R): A ratio can be defined as the comparison between two numbers having same unit to find out how much bigger is first number than second number.

Q 7. **Assertion (A):** If the diagonals of a rhombus are 9 cm and 14 cm, its area will be 63 cm2.

Reason (R): Area of a rhombus $= 1/2 \times$ Products of the diagonals.

Q 8. **Assertion (A):** All the parallelograms are rectangles.

Reason(R): All the rhombuses are parallelograms.

Q9. **Assertion (A):** Sum of interior angles of a hexagon is 540°.

Reason (R) : Sum of interior angles $= (2n - 4) \times 90^\circ$.

Q 10. **Assertion (A):** Factors of $2x2+ 9x +10$ is $(2x +5)(x +10)$.

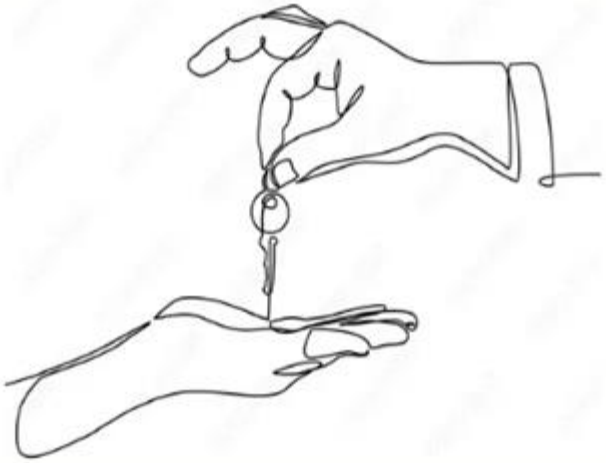
Reason (R) : Factorization of quadratic polynomial can be done using mid term splitting method

CASE STUDY BASED QUESTIONS

Q1.

Anima left one-half of her property to her daughter, one-third to her son and donated the rest to an educational institute. If the donation was worth Rs. 1,00,000.

Based on the above situation, answer the following questions:



(i) Write the linear equation formed in the above situation. 1

(ii) How much money did Anima have? 2

OR

How much money educational institute have?

(iii) How much money did Anima's son and daughter have?

Q2.

The total amount paid by Neha for purchasing some books at rate of Rs. x is $x^3 - x$.

The number of books is 1 more than the cost of each book.

Based on the above information, answer the following questions:

(i) How many books she can purchase with the amount she has? 1

(ii) How many sets of books she can purchase from $x^3 - x$ rupees if number of books in each set is x-1? 2

OR

If the cost of each book is Rs. 10, total how much money was spent in purchasing 4 sets of books? 2

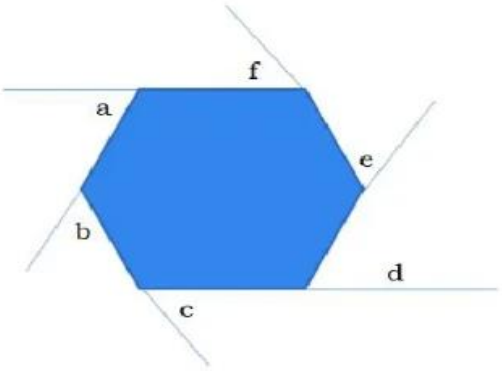
(iii) Find the common factor of x^2y^2z and $x^3y^3z^2$. 1

Q3.

HEXAGONAL SNOWFLAKES

A snowflake is formed when water molecules join together to make a rigid shape. The water molecules combine more molecules, they extend and form a rigid crystalline structure i.e., hexagon shape. Sometimes we can see snowflakes with 12 sides, when two snowflakes grow together.

Consider a regular hexagon and answer the following questions:



(i) What is the sum of measure of its exterior angles a, b, c, d, e, f ? 1

(ii) Is a = b = c = d = e = f? Why? 2

OR

What is the measure of each 2

(i) Exterior angle (ii) Interior angle

(iii) Is a rectangle a regular polygon? Why? 1