

**VASANT VALLEY SCHOOL**  
**MATHEMATICS**  
Class 9

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**Instructions:**

1. The first two assignments are a recapitulation of the topics done in the first term. This exercise will help you recollect the concepts. Solve these problems in your home work note book. In case you are not able to solve any, put \* mark against the question and it will be discussed in class.
  2. The 3<sup>rd</sup> and 4<sup>th</sup> assignment are to done in your Math Lab file
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Assignment 1

1. Multiply  $3\sqrt{5}$  by  $2\sqrt{5}$
2. Simplify:  $(16)^{3/2}$
3. If  $p(x) = 5 - 4x + 2x^2$ , find  $p(3)$
4. Factorise:  $18x^2y - 24xyz$
5.  $(25)^{x-3} = (125)^{2x-3}$ , find the value of x.
6. Find three rational numbers between between  $\frac{5}{7}$  and  $\frac{9}{11}$
7. Find the value of a for which  $(x-4)$  is a factor of  $(2x^3-3x^2-18x+a)$
8. Factorise  $8x^3 + 64z^3$
9. Expand:  $1+b^3+8c^3-6bc$
10. Rationalise the denominator:  $\frac{4}{\sqrt{7}-\sqrt{3}}$
11. Factorise:  $x^3 - 3x^2 - 9x - 5$

## Assignment 2

1. Divide the given algebraic expression  $p(x)$  by  $q(x)$  using long division method and write the quotient and the remainder
  - a).  $p(x) = 3m^3 + 4m^2 + 5m + 18$  by  $q(x) = m + 2$
  - b).  $p(x) = 9x^3 + 3x^2 - 5x + 7$  by  $q(x) = 3x - 1$
  - c).  $p(x) = 3y^4 - 3y^3 - 4y^2 - 4y$  by  $q(x) = y^2 - 2y$
2. If  $\frac{2x-3}{3x+2} = \frac{-2}{3}$ , find the value of  $x$
3. What is smallest number that must be subtracted from 2361 in order to get a perfect square?
4. By which smallest number must 1512 be multiplied so that the product is a perfect square.
5. Find the least number of 5 digit which is a perfect square.
6. If the volume of the cube is 512 cu metres what is the length of one side of the cube?

### Assignment 3

You have studied many properties of a triangle. Now let us study yet another result which is related to the mid point of sides of a triangle – ‘Mid point theorem’

State and prove the midpoint theorem (Theorem 8.9)

Also write its application in any field.

State and prove the converse of midpoint theorem (Theorem 8.10)

Write the above theorems in your Math lab file

You can also try to verify the above theorem using paper folding method (you may use any coloured paper/news paper for the purpose)

### Assignment 4

Read/surf the net for biography of the great Mathematician Ramanujan and write in about 100 words each on the following aspects;

1. Inspiration you get from his life
2. Emphasis on his contribution to mathematics.