

AMRIT JYOTI HIGH SCHOOL

REVISION WORKSHEET - 2019-20

GRADE: 9

Sub.: Mathematics

Date: 26-03-2020

1. By Remainder Theorem find the remainder, when $p(x)$ is divided by $g(x)$, where

(i) $p(x) = x^3 - 2x^2 - 4x - 1$, $g(x) = x + 1$

(ii) $p(x) = x^3 - 3x^2 + 4x + 50$, $g(x) = x - 3$

(iii) $p(x) = 4x^3 - 12x^2 + 14x - 3$, $g(x) = 2x - 1$

2. Factorise the following:

(i) $x^2 + 9x + 18$

(ii) $6x^2 + 7x - 3$

(iii) $2x^2 - 7x - 15$

(iv) $84 - 2r - 2r^2$

(v) $2x^3 - 3x^2 - 17x + 30$

(vi) $x^3 - 6x^2 + 11x - 6$

(vii) $x^3 - x^2 - 4x - 4$

(viii) $3x^3 - x^2 - 3x + 1$

(ix) $\left(2x + \frac{1}{3}\right)^2 - \left(x - \frac{1}{2}\right)^2$

(x) $9y^2 - 66yz + 121z^2$

3. If $a + b + c = 9$ and $ab + bc + ca = 26$, find $a^2 + b^2 + c^2$.

4. If the polynomial $az^3 + 4z^2 + 3z - 4$ and $z^3 - 4z + a$ leave the same remainder when divided by $z - 3$, find the value of a .

5. The polynomial $p(x) = x^4 - 2x^3 + 3x^2 - ax + 3a - 7$ when divided by $x + 1$ leaves the remainder 19. Find the values of a . Also find the remainder when $p(x)$ is divided by $x + 2$.

6. If both $x - 2$ and $x - \frac{1}{2}$ are factors of $px^2 + 5x + r$, show that $p = r$.

7. Simplify: $(2x - 5y)^3 - (2x + 5y)^3$.

8. Multiply $x^2 + 4y^2 + z^2 + 2xy + xz - 2yz$ by $(-z + x - 2y)$.

9. Expand the following:

(i) $(3a - 2b)^3$

(ii) $\left(\frac{1}{x} + \frac{y}{3}\right)^3$

(iii) $\left(4 - \frac{1}{3x}\right)^3$

10. Without actually calculating the cubes, find the value of:

(i) $\left(\frac{1}{2}\right)^3 + \left(\frac{1}{3}\right)^3 - \left(\frac{5}{6}\right)^3$

(ii) $(0.2)^3 - (0.3)^3 + (0.1)^3$