Polynomials (practice sheet-1)

1. Which of the following is a true statement?

(a) $5x^3$ is a monomial

(b)$x^2 + 5x - 3$ is a linear polynomial

(c) x+1 is monomial

(d) $x^2 + 4x - 1$ is a binomial

2. A quadratic polynomial whose product and sum of zeroes are $\frac{1}{3}$ and $\sqrt{2}$ respectively.

(a)$3x^2 - x + 3\sqrt{2}\,x$

(b) $3x^2 - 3\sqrt{2}\,x + 1$

(c) $3x^2 + x - 3\sqrt{2}\,x$

(d) $3x^2 + 3\sqrt{2}\,x + 1$

3. If α , β are the zeros of the polynomial $f(x) = ax^2 + bx + c$, then $\frac{1}{\alpha^2} + \frac{1}{\beta^2}$ =

(a) $\frac{b^2 + 2ac}{c^2}$

(b) $\frac{b^2 - 2ac}{c^2}$

(c)) $\frac{b^2 + 2ac}{a^2}$

(d)) $\frac{b^2 - 2ac}{a^2}$

4. The number of zeroes of a cubic polynomial is

(a) at most 3

(b) 3

(c) at least 3

(d) 2

5. If $a - b$, a and $a + b$ are zeros of the polynomial $x^3 - 3x^2 + x + 1$, then the value of $a + b$ is

(a) $-1 - \sqrt{2}$

(b) 3

(c) $-1 + \sqrt{2}$

(d)$1 \pm \sqrt{2}$

6. The number of polynomials having zeros as -2 and 5 is

(a) 1

(b)2

(c)3

(d) more than 3

7. If the sum of the zeros of the quadratic polynomial for $kx^2 + 2x + 3k$ is equal to the product of Its zeros then k =?

(a)$\frac{1}{3}$

(b) $\frac{2}{3}$

(c)$\frac{-2}{3}$

(d)$-\frac{1}{3}$

8. The zeroes of the quadratic polynomial$x^2 + 99x + 127$ are

(a) both negative

(b) one positive and one negative

(c) both positive

(d) both equal

9. The polynomial to be added to the polynomial $x^4 + 2x^3 - 2x^2 + x - 1$ so that the resulting polynomial is exactly divisible by $x^2 + 2x - 3$ is

(a)$x^2 + 1$

(b)$2 - x$

(c)$x - 2$

(d)x+2

10. Find a quadratic polynomial whose one zero is -5 and product of zeroes is 0.

11. $p(x) = g(x)q(x) + r(x)$. If degree of $g(x) = 4$, degree of $q(x) = 3$ and degree of $r(x) = 2$, then find the degree of $p(x)$.

12. Find the sum of the zeroes of the given quadratic polynomial $-3x^2 + k$.

13. Divide $15y^4 - 16y^3 + 9y^2 - \frac{10}{3}y$ by $3y - 2$.

14. Verify that $x = 3$ is a zero of the polynomial $p(x) = 2x^3 - 5x^2 - 4x + 3$.

15. If α and β are the zeros of the polynomial $f(x) = x^2 + x - 2$, find the value of $(\frac{1}{\alpha} - \frac{1}{\beta})$.

Answers. 1. (a) **2.** (b) **3**. (b) **4.** (a) **5.**(d) **6.** (d) **7.** (c) **8.** (a) **9**. (c) **10**. $x^2 + 5x$ **11.** 7 **12**. 0

13. quotient : $5y^3 - 2y^2 + \frac{5}{3}$y and remainder=0 **15**. $-\frac{3}{2}$