

Name:

Date: Score:

Polynomials & Real Numbers

1 Find the remainder when $x^3 - ax^2 + 6 - a$ is divided by $(x - a)$

2 If α and β are zeros of $p(x) = x^2 + x - 1$, then find $\frac{1}{\alpha} + \frac{1}{\beta}$

3 If \sqrt{xy} is an irrational number then show that $(\sqrt{x} + \sqrt{y})$ is also an irrational number.

4 Find a quadratic polynomial, the sum and product of whose zeros are $\sqrt{2}$ and $-\frac{3}{2}$ respectively. Also, find its zeroes.

5 If the polynomial $x^4 + 2x^3 + 8x^2 + 12x + 18$ is divided by another polynomial $x^2 + 5$, the remainder is found to be $px + q$. Find the values of 'p' and 'q'.

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Answers

- 1 Find the remainder when $x^3 - ax^2 + 6 - a$ is divided by $(x - a)$

Ans: $6 - a$

- 2 If α and β are zeros of $p(x) = x^2 + x - 1$, then find $\frac{1}{\alpha} + \frac{1}{\beta}$

Ans: 1

- 3 If \sqrt{xy} is an irrational number then show that $(\sqrt{x} + \sqrt{y})$ is also an irrational number.

Ans: Answer not required

- 4 Find a quadratic polynomial, the sum and product of whose zeros are $\sqrt{2}$ and $-\frac{3}{2}$ respectively. Also, find its zeroes.

Ans: $-\frac{1}{\sqrt{2}}$ and $\frac{3}{\sqrt{2}}$

- 5 If the polynomial $x^4 + 2x^3 + 8x^2 + 12x + 18$ is divided by another polynomial $x^2 + 5$, the remainder is found to be $px + q$. Find the values of 'p' and 'q'.

Ans: $p = 2, q = 3$