

# END OF MONTH EXAM



## QUESTION PAPER

**Topics:** Power Functions, Polynomial Functions & Rational Functions

1. Consider the power function  $f(x) = -3x^4$ .

Find:

- $f(-2)$
- $f(1)$
- State whether the function is **even, odd, or neither**.

2. The polynomial function is  $p(x) = x^3 - 6x^2 + 11x - 6$ .

Factor the polynomial completely and state all of its zeros.

3. A polynomial function has zeros at  $-1$ ,  $2$ , and  $5$ , with a leading coefficient of  $1$ .

Write the polynomial in **factored form** and find  $f(0)$ .

4. Consider the rational function

$$f(x) = \frac{x - 2}{x + 4}.$$

State:

- the domain,
- the vertical asymptote,
- the  $x$ -intercept, and
- the  $y$ -intercept.

5. Consider the rational function

$$g(x) = \frac{x^2 - 9}{x - 3}.$$

Factor the numerator, simplify the function, and state any **restriction on the domain**.