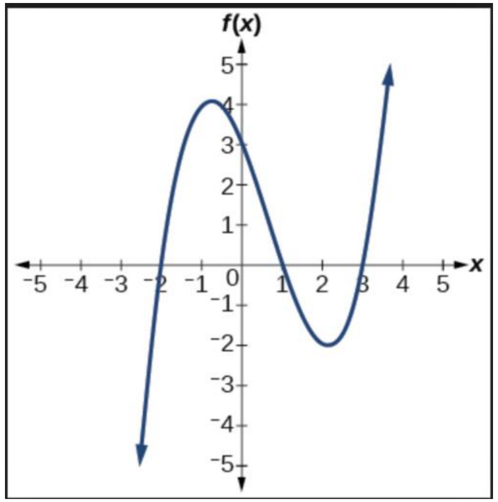
Consider the graph of the polynomial function.



What is the possible smallest degree for this polynomial function? Explain your reasoning.

Estimate the coordinates of local extrema.

Estimate the zeros of the function.

Create a rule for this polynomial. Write the the points used to create the rule.

Give the intervals of increasing and decreasing.

Consider the function $g(x) = (x^2 - 2x)(x - 6)$

What are the zeros?

Write the function in standard form.

What are the end behaviors g(x)?

Write a cubic function that has zeros of (-3, 0) and (5,0). Find the y-intercept and sketch a graph.

Preform the indicated operation. Make sure your answer is in standard form.

$(-4x + 4x^3 + 7) + (3x^3 - 9 - 3x)$

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

$(x^2 + 3x - 4)(x^2 - 6x + 5)$

Using long division to see if $3x - 2$ is a factor of $9x^3 - x + 3$.

Use synthetic division to divide f(x) by d(x).

$f(x) = 3x^3 - 2x^2 + 3x - 6$ $\qquad$ $d(x) = x + 1$

Write each as a product of linear factors. Then solve each function.

$f(x) = 2x^2 + 7x + 5$

$g(x) = 4x^2 - 7x + 3$

Give the degree of the polynomial. Give the zeros, the multiplicity of each zero, and whether the graph crosses the x-axis or touches at the corresponding zero.

$y = (x-3)^2(x+2)^3(x-5)^2$

$y = x^2(2x-3)^2(x+3)^3$

Write a polynomial function of minimum degree in factored form with real coefficients whose zeros and their multiplicities included those listed.

-3 (multiplicity of 2), 5 (multiplicity 3)

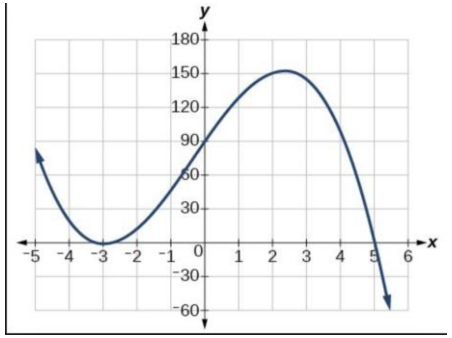
0 (multiplicity of 1), 4(multiplicity of 3), -1 (multiplicity of 2)

Write a polynomial function in standard form of least degree with integer coefficients that has the given zeros.

-2, -1, 6

-3, $\frac{2}{3}$, $\frac{4}{3}$

Write the end behaviors for each function.



$$f(x) = -x^6 - 4x^4 - 2x + 5$$

$$g(x) = g^5 - 2x + 1$$