Polynomial Functions and Their Graphs

1. Determine which functions are polynomial functions. For those that are, identify the degree:

$$f(x) = 5x^3 - 7x^2$$

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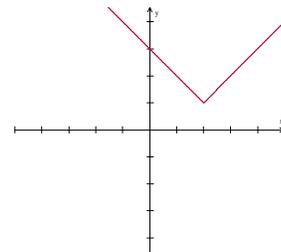
$$h(x) = 5x^3 - 3x^2 - \frac{5}{x}$$

3. Determine which functions are polynomial functions. For those that are, identify the degree:
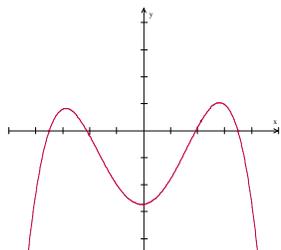
$$f(x) = x^{\frac{1}{5}} - x^2 + 1$$

4. Determine which functions are polynomial functions. For those that are, identify the degree:
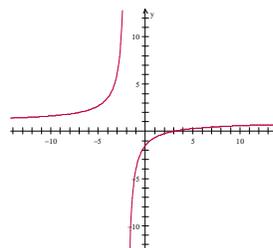
$$f(x) = \frac{4x^2 - 2}{5}$$

5. Identify which graphs are not those of polynomial functions:

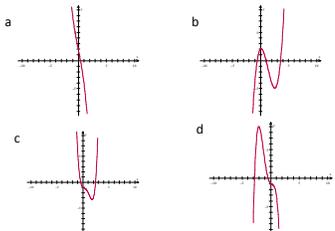6. Identify which graphs are not those of polynomial functions:

7. Identify which graphs are not those of polynomial functions:

8. Use the Leading Coefficient Test to determine the end behavior of the graph and then match it to the graphs below:

$$f(x) = x^3 - 4x^2 + x + 2$$

a

b

c

d

9. Use the Leading Coefficient Test to determine the end behavior of the graph of the polynomial function:

$$f(x) = -5x^3 - x^2 - 5x - 2$$

10. Find the zeros for each polynomial function and give the multiplicity for each zero. State whether the graph crosses the x-axis, or touches the x-axis and turns around, at each zero :

$$f(x) = 2(x-3)(x+1)^2$$

11. Find the zeros for each polynomial function and give the multiplicity for each zero. State whether the graph crosses the x-axis, , or touches the x-axis and turns around, at each zero :

$$f(x) = x^3 + 3x^2 - 4x - 12$$

12. Graph:

$$f(x) = x^4 + x^3 - 6x^2$$