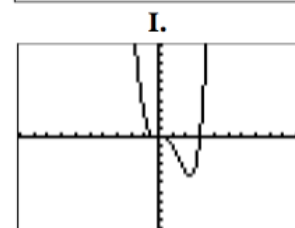
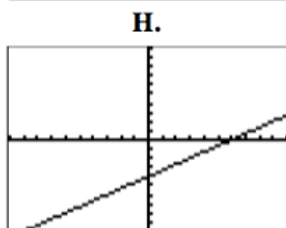
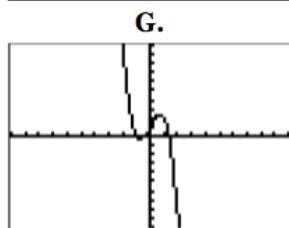
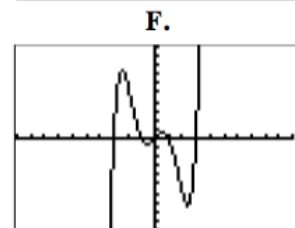
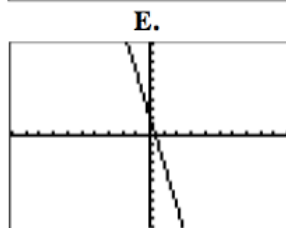
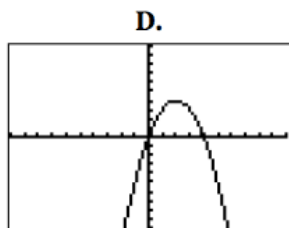
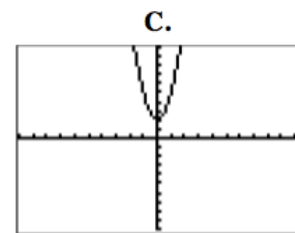
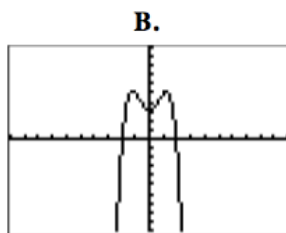
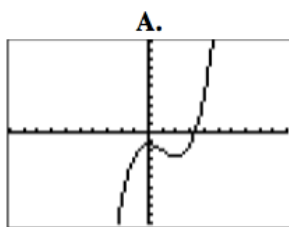


Continued Practice with Graphing Polynomials

Without graphing, identify the end behavior of the polynomial function.

1] $y = 2x^5 + 7x^2 + 4x$ Degree: _____ Sign of LC: _____ as $x \rightarrow -\infty, y \rightarrow$ _____ as $x \rightarrow \infty, y \rightarrow$ _____	2] $y = -5x$ Degree: _____ Sign of LC: _____ as $x \rightarrow -\infty, y \rightarrow$ _____ as $x \rightarrow \infty, y \rightarrow$ _____	3] $y = 12x^4 - 2x + 5$ Degree: _____ Sign of LC: _____ as $x \rightarrow -\infty, y \rightarrow$ _____ as $x \rightarrow \infty, y \rightarrow$ _____
4] $y = 6 - 2x - 4x^2 + 5x^3$ Standard Form: Degree: _____ Sign of LC: _____ as $x \rightarrow -\infty, y \rightarrow$ _____ as $x \rightarrow \infty, y \rightarrow$ _____	5] $y = 1 + 2x^6 - 4x^2 - 2x^6$ Standard Form: Degree: _____ Sign of LC: _____ as $x \rightarrow -\infty, y \rightarrow$ _____ as $x \rightarrow \infty, y \rightarrow$ _____	6] $y = 4x + 2 - 5x^6$ Standard Form: Degree: _____ Sign of LC: _____ as $x \rightarrow -\infty, y \rightarrow$ _____ as $x \rightarrow \infty, y \rightarrow$ _____

Match the polynomial function with its graph without using a graphing calculator. Think about how the degree of the polynomial affects the shape of the graph.



___ 7] $y = -x^2 + 4x$

___ 8] $y = -2x^3 + 3x + 1$

___ 9] $y = \frac{1}{3}x^3 - x^2 - \frac{4}{3}$

___ 10] $y = -x^4 + 3x^2 + 3$

___ 11] $y = 3x^2 + 2$

___ 12] $y = \frac{2}{3}x - 4$

___ 13] $y = \frac{1}{2}x^4 - \frac{3}{2}x^3$

___ 14] $y = \frac{1}{5}x^5 - 2x^3 + \frac{9}{5}x$

___ 15] $y = -5x + 2$

For each of the following, use the end behavior and x-intercepts to match the equation to its graph.

16. $f(x) = x^3 - 3x^2$

19. $f(x) = x$

22. $f(x) = -3(x-1)(x-2)^2(x-3)$

25. $f(x) = 9 - 4x^2$

28. $f(x) = x^2(x-3)^3$

17. $f(x) = -2x^3 + 8x$

20. $f(x) = (x-1)(x-3)(x-5)$

23. $f(x) = -2x^2 + 16x - 24$

26. $f(x) = -(x-4)(x-3)(x-1)^2$

29. $f(x) = x^4 - 3x^3$

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

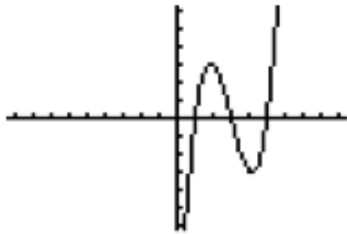
21. $f(x) = -x^3 + 9x$

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

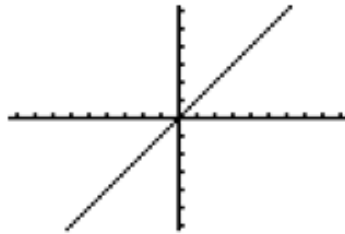
27. $f(x) = -5$

30. $f(x) = x^4 - 6x^3 + 8x^2$

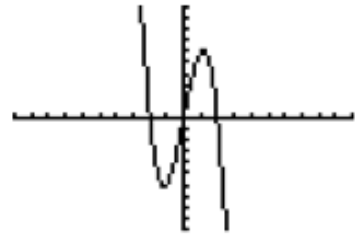
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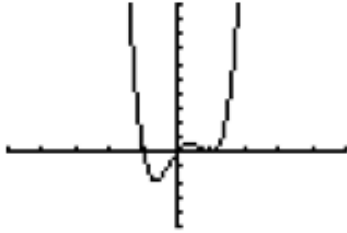
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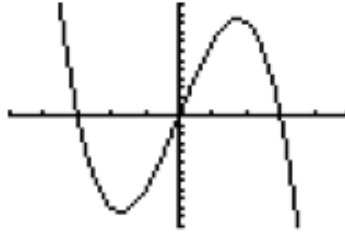
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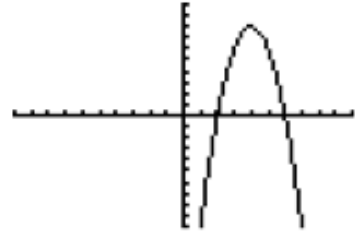
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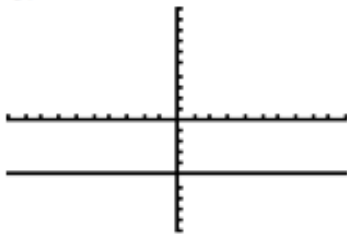
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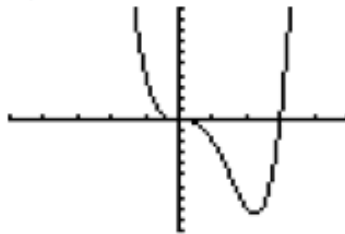
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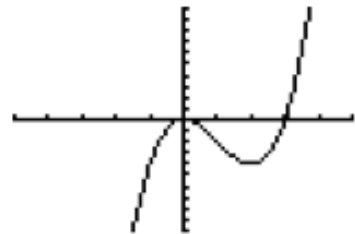
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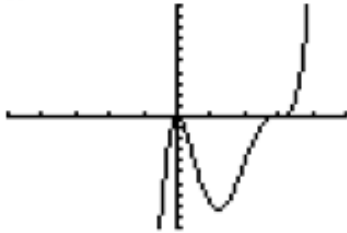
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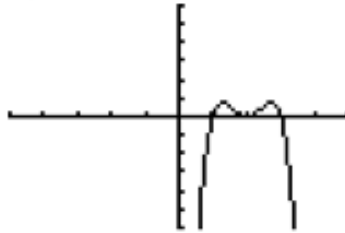
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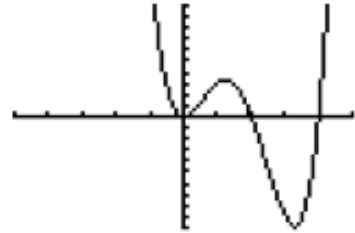
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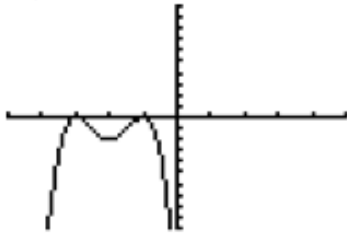
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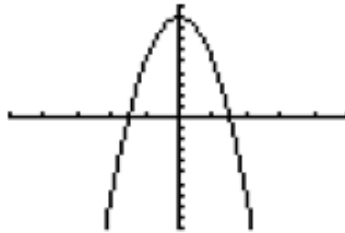
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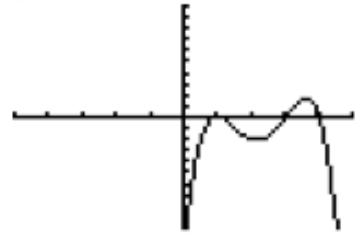
M.



N.



O.



31. Write an equation of a quintic polynomial with a negative leading coefficient that has x -intercepts at $x = 0, -1, 5$ and multiplicity at $x = -2$. Sketch an image of this polynomial.

32. Write an equation of a cubic polynomial with a positive leading coefficient that has x -intercepts at $x = -8, -3, 5$. Sketch an image of this polynomial.

33. Given $h(x) = x^2 - 11x + 10$

a. Factor $h(x)$ completely

e. Identify the end behavior of $h(x)$

As $x \rightarrow \infty, h(x) \rightarrow$

As $x \rightarrow -\infty, h(x) \rightarrow$

b. Find the zeros of $h(x)$

c. Highest Degree _____ (even or odd)

d. Leading Coefficient _____ (+ or -)

f. Draw a rough sketch of $h(x)$

