Name:_____ Date: _____

Complete the following table using each polynomial function:

Function	Leading Coeff (+ or -)	Degree	End Behavior
1. $f(x) = -4x^5 - x^2 - 8x + 12$			As $x \to -\infty$ $f(x) \to$ _____ As $x \to \infty$ $f(x) \to$ _____
2. $f(x) = 12x + 4 - 3x^3$			As $x \to -\infty$ $f(x) \to$ _____ As $x \to \infty$ $f(x) \to$ _____
3. $f(x) = 4x^2 - 2 - 2x^6 + x$			As $x \to -\infty$ $f(x) \to$ _____ As $x \to \infty$ $f(x) \to$ _____
4. $f(x) = 5x^3 - x + 3x^4 - 6 + 5x^2$			As $x \to -\infty$ $f(x) \to$ _____ As $x \to \infty$ $f(x) \to$ _____
5. $f(x) = -5x + 7 - 6x^2$			As $x \to -\infty$ $f(x) \to$ _____ As $x \to \infty$ $f(x) \to$ _____

Use the equations to answer the following:

Function	Degree	Max # of Extrema
6. $f(x) = x^3 - x^2 - 8x + 12$		
7. $f(x) = -12x^2 + 4$		
8. $f(x) = x^4 + 2x^3 - 5x^2 - 6x$		

Given the graphs, state the Max # of Extrema and the Least Possible Degree

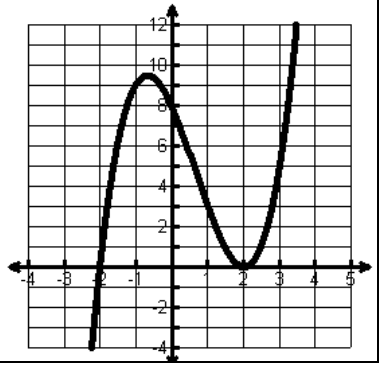
9.

# of Extrema

_____

Least possible degree

_____

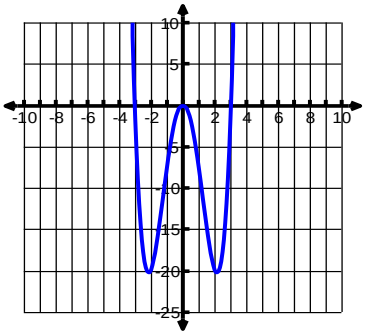


10.

# of Extrema

_____

Least possible degree _____

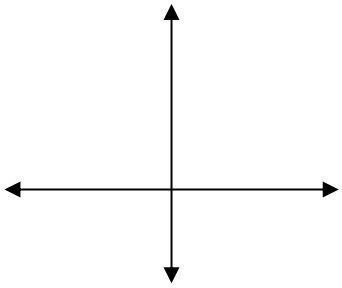


Determine the end behavior and maximum number of extrema (u-turns) w/o calculator:

$f(x) = -8x^5 - 7x^3 + 3x - 7$ 11. $x \to -\infty$ $f(x) \to$ _____ *extrema* _____ $x \to \infty$ $f(x) \to$ _____	$f(x) = 12 - 3x^3 + 5x^3 - 7x^4$ 12. $x \to -\infty$ $f(x) \to$ _____ *extrema* _____ $x \to \infty$ $f(x) \to$ _____
$f(x) = 1 - 3x - 2x^2 - 5x^3 + 7x^4 - 12x^5$ 13. $x \to -\infty$ $f(x) \to$ _____ *extrema* _____ $x \to \infty$ $f(x) \to$ _____	$f(x) = -7x^3 + 343$ 14. $x \to -\infty$ $f(x) \to$ _____ *extrema* _____ $x \to \infty$ $f(x) \to$ _____

Find the number of zeros, y-int, & end behavior. Sketch the graph:

15. $x^4 - 13x^2 + 36 = 0$
given zeros: $-3, -2, 2, 3$

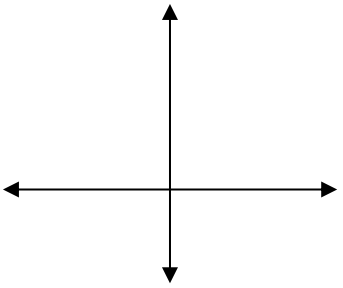


# of Zeros: _____ Y-Int: _____

$x \to -\infty$ $f(x) \to$ _____

$x \to \infty$ $f(x) \to$ _____ max # of *extrema* _____

16. $x^3 - x^2 - 16x + 16 = 0$
given zeros: $-4, 1, 4$



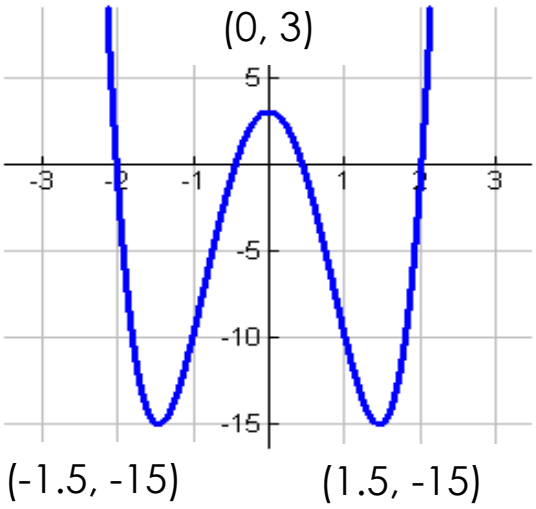
# of Zeros: _____ Y-Int: _____

$x \to -\infty$ $f(x) \to$ _____

$x \to \infty$ $f(x) \to$ _____ max # of *extrema* _____

Answer all of the following questions for the following graph:

17.



Domain:	Range:
Increasing:	Decreasing:
x-intercepts:	y-intercept:
Abs. Max:	Abs. Min:
Rel. Max:	Rel. Min:
Min. degree	Sign of leading Coeff.