Math III Unit 1: Characteristics of Polynomials Name: Key

Unit 1 Quiz #1 REVIEW

For each of the following functions: a) Name the function by degree and by number of terms; b) identify the leading coefficient; c) Determine whether the function is even, odd, or neither and describe any symmetry.

1) $f(x) = 3x^4 - 5x^2 - 3$

a) quartic trinomial
b) LC = 3
c) even; y-axis

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

a) quintic binomial
b) LC = -1
c) odd; origin

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

a) cubic polynomial
b) LC = 1
c) neither; none

4) $f(x) = 4x + 3$

a) linear binomial
b) LC = 4
c) neither, none

Identify the parent function and describe the transformations of each of the following functions.

5) $f(x) = -\frac{1}{3}(x+2)^4 - 3$

PF: $y = x^4$, reflects across x
shrink by 1/3, ←2, ↓3

6) $f(x) = 4x^3 + 5$

PF: $y = x^3$
stretch by 4, ↑5

7) $f(x) = (x-1)^5 - 2$

PF: $y = x^5$, →1
↓2

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

PF: $y = x^2$, reflects across x
←3

Complete the requested information for each polynomial function.

9) $f(x) = -3x^5 + 4x$

odd
(-)

Classify/Name by Degree quintic
Classify/Name by # of Terms binomial
Func Type: Even / (Odd) / Neither Symmetry type: origin
Degree 5 Leading Coefficient -3
Left Arm: (Rises) Falls
Right Arm: Rises (Falls)

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

Classify/Name by Degree quartic

Classify/Name by # of Terms trinomial

Func Type: (Even) / Odd / Neither Symmetry type: y-axis

Degree 4 Leading Coefficient 2

Left Arm: (Rises) Falls

Right Arm: (Rises) Falls

11) $f(x) = x^3 - 5x^2 + x - 1$

Classify/Name by Degree cubic

Classify/Name by # of Terms polynomial

Func Type: Even / Odd / (Neither) Symmetry type: none

Degree 3 Leading Coefficient 1

Left Arm: Rises (Falls)

Right Arm: (Rises) Falls

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

Classify/Name by Degree 6th degree

Classify/Name by # of Terms trinomial

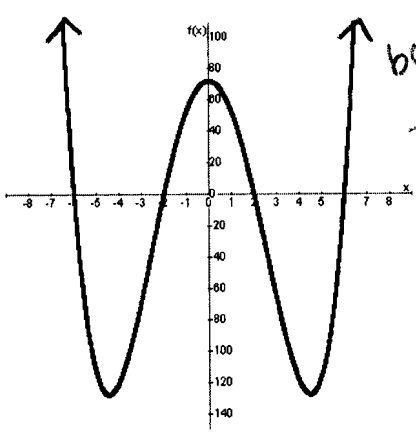
Func Type: Even / Odd / (Neither) Symmetry type: none

Degree 6 Leading Coefficient -1

Left Arm: Rises (Falls)

Right Arm: Rises (Falls)

Complete the requested information for the function graphed below. Give the domain and range in interval notation.



both ends rise
even (+)

Domain $(-\infty, \infty)$

Range $[-130, \infty)$

Degree: (Even) or Odd

Leading Coefficient: (Positive) or Negative

Function: (Even) Odd Neither

Symmetry: (Y-Axis) Origin None