

Summative Review: Polynomial Operations/Graphing

Name: _____

Write the polynomial in standard form. Then classify it by degree and the number of terms.

1. $-4x + x^3 - 1 + 8x^2$

2. $-7 + 5m^3 - 3m^2$

a. Standard form: _____

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b. Classify by degree: _____

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c. Classify by terms: _____

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Simplify.

All answers should be in **standard** form and contain only **positive exponents**.

$(-a^5b^4)^{-3} \cdot -2ab^{-5}$	$\frac{7x^{-2}y \cdot 10x^7y}{5x^6y^2}$	$(6x^2 + 8x) + (6 - 3x^2 + 10x)$
$(3x^3 + 5x^2 + 2) - (5x^2 - 9x^4 + 7)$	$(4x + 1)(x^2 - 2x - 1)$	$(x - 1)(x - 3)^2$

9. $f(x) = x^4 - 5x^3 - 14x^2$

Is the degree even or odd?

Is the leading coefficient positive or negative?

Domain:

Range:

Relative Maximum(s):

Relative Minimum(s):

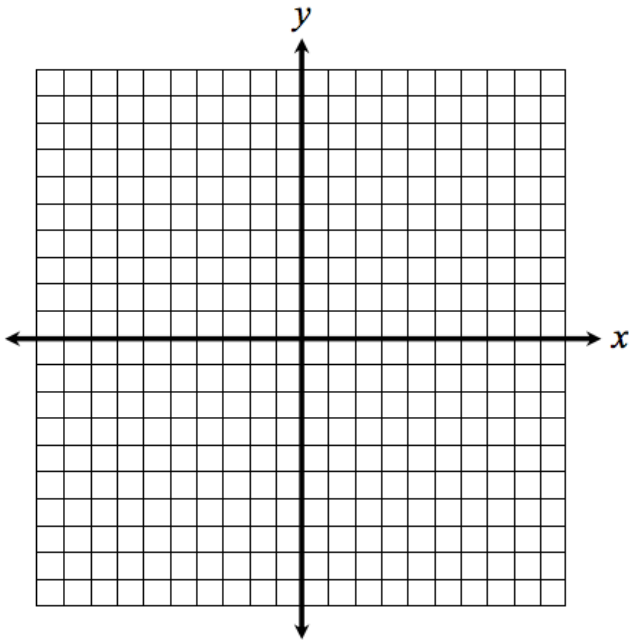
End Behavior: As $x \rightarrow \infty$, $f(x) \rightarrow$ _____

As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

Increasing Intervals:

Decreasing Intervals:

Zeros:



Identify the zeros, their multiplicity, and their effect on the graph of the function.

10. $g(x) = -x^4 - 14x^3 - 49x^2$

Zero	Multiplicity	Effect

11. Use long division:

a) $(x^3 - 14x - 15) \div (x - 3)$

b) $(x^3 - x - 1) \div (x + 4)$

12. Use synthetic division:

a) $(x^4 + 2x^2 - x + 1) \div (x + 5)$

b) $(2x^3 - 5x - 1) \div (x - 1)$

13. Use a method of your choice: $(4x^3 + 10) \div (x + 1)$

Given $f(x) = 9x^3 - 5$, $g(x) = -4x^2 + 3$, and $h(x) = -2x + 1$

14. Find $(f + g)(x)$

Evaluate $(f + g)(2)$

15. Find $(g - f)(x)$.

Evaluate $(g - f)(-2)$

16. Find $(h \cdot g)(x)$

Evaluate $(h \cdot g)(1)$

17. Find $(h \circ f)(x)$

Evaluate $(h \circ f)(0)$