Honors Algebra 2 Trig
4.1 Worksheet
**Work is required for credit!

NVMATH

Name: Key

Date: _____

Identify each expression as a polynomial or not a polynomial. For each polynomial, give the degree and identify the number of terms.

1. $2a^6 + 5a^2 + 4a$ polynomial · 6th degree, trinomial

2. $\sqrt{2}x^2 + \sqrt{3}x^6$ polynomial 6th degree, binomial

3. $-\sqrt{7}m^5n^2 + 2\sqrt{3}m^3n^2$ polynomial 7th degree, binomial

4. $\frac{1}{3}r^2s^2 - \frac{3}{5}r^4s^2 + rs^3$ polynomial 6th degree, binomial

5. $\frac{13}{10}p^7 - \frac{2}{7}p^5$ polynomial 7th degree, binomial

6. $\frac{5}{p} + \frac{2}{p^2} + \frac{5}{p^3}$ not a polynomial

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Determine the end behavior of the graph of each polynomial.

7. $f(x) = -6x^3 - 4x^2 + 2x - 1$ ↑ ↓

8. $f(x) = 8x^7 - x^5 + x - 1$ ↓ ↑

9. $f(x) = 12x^6 - x^5 + 2x - 2$ ↑ ↑

10. $f(x) = 8 + 2x - 5x^2 - 10x^4$ ↓ ↓

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Use a graphing calculator to determine the coordinates of the turning points of the graph of each polynomial function. Give answers to the nearest thousandth.

11. $f(x) = 2x^2 - 7x + 4$ (1.75, -2.125)

12. $f(x) = 2x^3 - 9x^2 + x + 20$ (.057, 20.028) (2.943, -4.028)

13. $f(x) = x^3 - x + 3$ (-.577, 3.385) (.577, 2.615)

Determine the domain and range of the following functions.

14. $f(x) = x^5 + 2x^3 - 2x^2 + 5x + 5$ D $(-\infty, \infty)$ R: $(-\infty, \infty)$

15. $f(x) = 3x^4 + 2x^3 - 4x^2 + x - 1$ D: $(-\infty, \infty)$ R: $(-5.235, \infty)$

16. $f(x) = x^5 - 3x^3 + x + 2$ D: $(-\infty, \infty)$ R: $(-\infty, \infty)$