PreAP Algebra 2 Name_____

T10 Review

Simplify each expression.

1) $(3a^3 - 2) - (7 - 2a^2 + a^3)$

2) $(2k^2 + 2k^3) - (7k^2 + 5k^3 - 2)$

3) $(2x + 2x^2 - 4x^3 - 7x^4) - (3x^2 - 5x^3 - 2x^4)$

4) $(6v^2 - 4 - 3v^3 + 2v) - (2v^2 + 6v^3 + 1)$

5) $(5a^3 - 7a^2 - 8) - (3a^2 + 8) + (6a + 4a^3 - 5)$

6) $(5n^4 - 7n + 5n^3) + (3n^4 + 7n^2) + (7n^4 - 2n^3 + 5n^2)$

Find each product.

7) $(4n + 3)(6n^2 + n + 4)$

8) $(8p + 6)(8p^2 + 6p - 1)$

9) $(5k^2 + 6k + 1)(8k^2 - 2k - 5)$

10) $(5x^2 - 3x - 3)(8x^2 + 5x + 5)$

Use Pascal's Triangle to multiply the binomials.

11) $(2x + y)^6$

12) $(x + 4)^4$

Divide using synthetic division.

13) $(a^3 - 2a^2 - 56a - 64) \div (a - 9)$

14) $(8v^4 - 38v^3 - 140v^2 - 52v + 65) \div (8v + 10)$

15) $(5x^5 + 45x^4 + 10x^3 - 10x^2 - 15x - 27) \div (5x + 5)$

Divide using long division.

16) $(p^3 - 11p^2 + p + 94) \div (p - 10)$

17) $(10x^5 - 105x^4 + 59x^3 - 81x^2 - 95x + 49) \div (x - 10)$

18) $(x^3 - 3x^2 - 25x + 7) \div (x + 4)$

Evaluate each function at the given value.

19) $f(n) = n^4 - 12n^3 + 33n^2 + 20n - 22$ at $n = 6$

20) $f(a) = a^6 + 4a^5 + 5a^4 - 2a^3 - 12a^2 - 11a - 5$ at $a = -2$

21) $f(a) = -3a^5 - a^4 + 14a^3 + 7a^2 + 4a + 8$ at $a = -2$

22) $f(x) = -4x^5 - 8x^4 + 9x^3 - 7x^2 + 4x - 1$ at $x = -3$

Describe the end behavior of each function. Tell how many possible turns (min/max) and possible zeros.

23) $f(x) = x^4 - x^2 - x + 4$

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

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

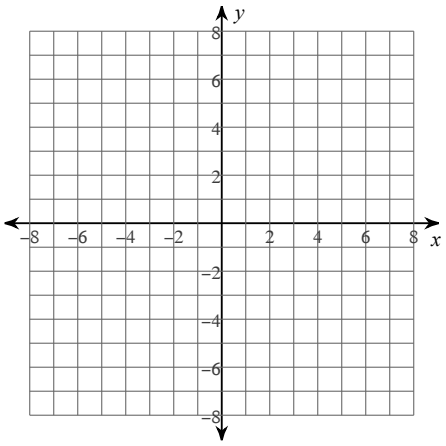
26) $f(x) = x^3 - x^2 + 3$

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

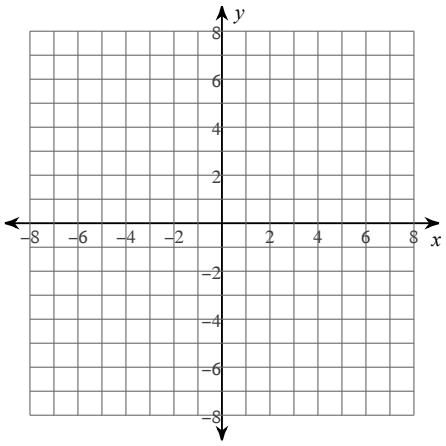
28) $f(x) = -x^4 + 2x^2 + 4$

Use desmos to make a table. Sketch the graph of each function. State the intervals of increase and decrease. Give the ordered pairs for relative min/max.

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



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



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