

Unit 6 First Review

Date _____ Period _____

Name each polynomial by degree and number of terms.

1) -5

2) $9b + 5b^2 - 9 - 6b^3$

3) $8n^2 - n^4$

4) $2n^4 - 2n^5 + 9n^2$

Simplify each sum.

5) $(b + 7b^4 + 6b^3) + (7b^4 + 7b^3 + 6b)$

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

Simplify each difference.

7) $(2n^2 - 1 + 5n^4) - (n^3 + 4 + 5n^2)$

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

Find each product.

9) $6(8n^2 + 5n + 6)$

10) $(2v - 2)(7v - 6)$

11) $(8x - 3)(5x^2 + 4x - 3)$

12) $(4n - 2)(3n^2 - n + 7)$

Divide.

13) $(2x^3 + 4x^2 + 24x) \div 8x^3$

14) $(2m^3 + 2m^2 + 4m) \div 8m^2$

15) $(7x^3 - 9x^2 - x + 13) \div (x - 1)$

16) $(m^3 - 8m^2 - 27m + 73) \div (m - 10)$

Solve the equation. Find all roots/zeros and classify them as rational, irrational, or imaginary.

17) $x^3 - 3x^2 - 5x + 15 = 0$

18) $x^4 + 8x = 0$

1. Sketch the graph.

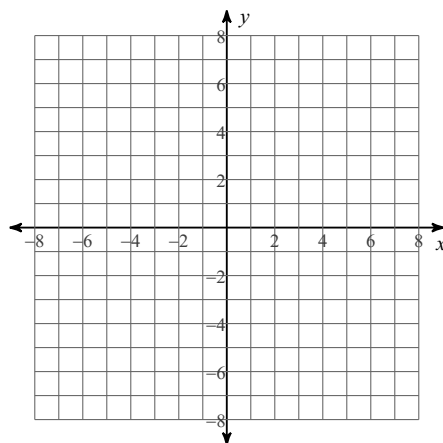
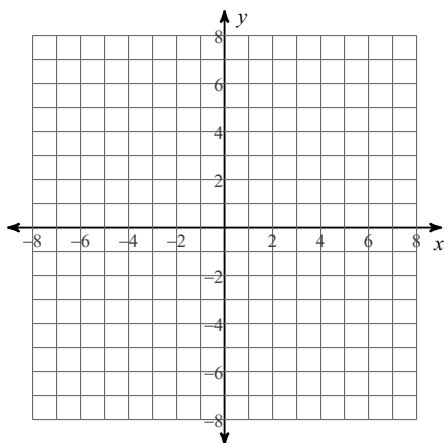
2. State the maximum number of turns the graph of each function could make.

3. Approximate each real zero to the nearest tenth.

4. Approximate the relative minima and relative maxima to the nearest tenth.

19) $f(x) = x^3 - 5x^2 + 7x - 5$

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



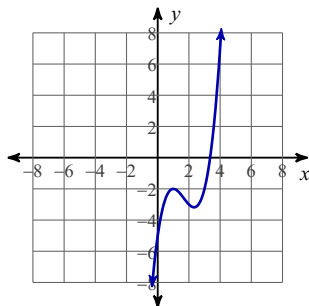
Answers to Unit 6 First Review

- 1) constant monomial 2) cubic polynomial with four terms 3) quartic binomial
 4) quintic trinomial 5) $14b^4 + 13b^3 + 7b$ 6) $-4n^3 - n^2 + 12n + 4$ 7) $5n^4 - n^3 - 3n^2 - 5$
 8) $10b^4 - 13b^3 + b^2$ 9) $48n^2 + 30n + 36$ 10) $14v^2 - 26v + 12$
 11) $40x^3 + 17x^2 - 36x + 9$ 12) $12n^3 - 10n^2 + 30n - 14$ 13) $\frac{1}{4} + \frac{1}{2x} + \frac{3}{x^2}$

14) $\frac{m}{4} + \frac{1}{4} + \frac{1}{2m}$ 15) $7x^2 - 2x - 3 + \frac{10}{x-1}$ 16) $m^2 + 2m - 7 + \frac{3}{m-10}$

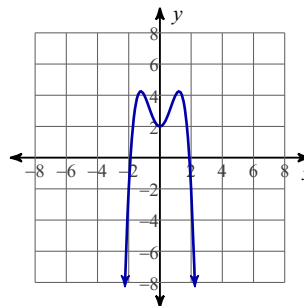
17) $\{3, \sqrt{5}, -\sqrt{5}\}$ 18) $\{0, -2, 1 + i\sqrt{3}, 1 - i\sqrt{3}\}$

19)



Max # Turns: 2
 Real Zeros: 3.4
 Minima: (2.3, -3.2)
 Maxima: (1, -2)

20)



Max # Turns: 3
 Real Zeros: -1.9, 1.9
 Minima: (0, 2)
 Maxima: (-1.2, 4.3)
 (1.2, 4.3)