

Chapter 5 Review

Name each polynomial by degree and number of terms. (Hint: Put in standard form and use your notes for terminology.)

1) $-4b^2 + b^6$

sixth degree binomial

2) $-7p^2 + p^4 - 6 - 3p^3$

quartic polynomial with four terms

3) 6

constant monomial

4) $2x^2 + 9 - x$

quadratic trinomial

5) $10p$

linear monomial

6) $9n^2 - 2n^3 - 8n + 8 + 2n^5 - 3n^4$

quintic polynomial with six terms

Describe the end behavior of each function. (Hint: Refer to the term with the largest exponent.)

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

Falls to the left. Rises to the right

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

Rises to the left. Rises to the right

9) $f(x) = -2x^2 + 12x - 17$

Falls to the left. Falls to the right

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

Falls to the left. Falls to the right

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

Rises to the left. Falls to the right

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

Rises to the left. Rises to the right

Find all zeros. List each multiplicity, if any. (Hint: Factor completely remembering to take out the GCF first, then solve. Watch your signs!)

13) $x^2 + 3x - 4 = 0$

 $\{1, -4\}$

14) $x^3 + 3x^2 - 10x = 0$

 $\{0, 2, -5\}$

$$15) x^3 - 5x^2 + 6x = 0$$

$$\{0, 2, 3\}$$

$$16) x^3 - 16x = 0$$

$$\{0, 4, -4\}$$

$$17) x^4 + 10x^3 + 25x^2 = 0$$

$$\{0 \text{ mult. } 2, -5 \text{ mult. } 2\}$$

$$18) x^2 - 2x + 1 = 0$$

$$\{1 \text{ mult. } 2\}$$

Divide.

$$19) (x^3 - 7x^2 + 9x + 5) \div (x - 5)$$

$$x^2 - 2x - 1$$

$$20) (n^3 + 2n^2 - 13n + 10) \div (n - 2)$$

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

$$21) (r^3 + 7r^2 + 15r + 9) \div (r + 1)$$

$$r^2 + 6r + 9$$

$$22) (x^3 + 2x^2 - 9x + 6) \div (x - 1)$$

$$x^2 + 3x - 6$$

$$23) (36x^3 + 19x^2 + x - 4) \div (4x - 1)$$

$$9x^2 + 7x + 2, R -2$$

$$24) (2n^3 + 8n^2 - 20n - 40) \div (n + 5)$$

$$2n^2 - 2n - 10, R 10$$

Find each term described.

$$25) \text{ 2nd term in expansion of } (m + 4)^4$$

$$16m^3$$

$$26) \text{ 6th term in expansion of } (2 + b^3)^5$$

$$b^{15}$$

Expand completely.

$$27) (x + y)^4$$

$$x^4 + 4x^3y + 6x^2y^2 + 4xy^3 + y^4$$

$$28) (2 - x^3)^3$$

$$8 - 12x^3 + 6x^6 - x^9$$

$$29) (y^4 - 4x^4)^3$$

$$y^{12} - 12y^8x^4 + 48y^4x^8 - 64x^{12}$$

$$30) (a - 4)^3$$

$$a^3 - 12a^2 + 48a - 64$$

31) $(3y - 1)^3$

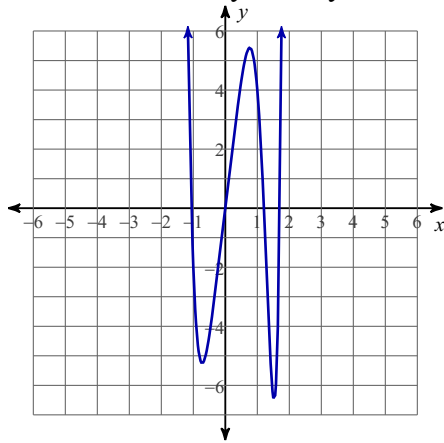
$27y^3 - 27y^2 + 9y - 1$

32) $(x - 4y^2)^3$

$x^3 - 12x^2y^2 + 48xy^4 - 64y^6$

Complete.

33) If the term of the largest exponent for a function is $-x^8$, is this a possible graph of the function? Why or why not?



No because the end behaviors would both point down.

35) At most, how many turning points would the function have?

$y = 5x^7 - 2x$

6

34) The following terms refer to the same general concept: roots, x-intercepts, and zeros. Circle one: True or False

True

36) Which section of this review do you feel most confident? Least confident?

See students' work.