

Homework Review - p. 557

Monomial:

- A term that has a variable raised to a non-zero, positive number:

monomials

→

x

x^4

$3x^{15}$

~~$4x$~~

~~$x^2 + 4$~~

~~x^{-2}~~

monomials

→

5

11

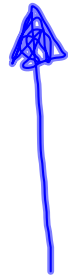
12.321

- A constant (any number)

$$\textcircled{1} (0.124x^3 + \sqrt{3}x)(4.221x^4 + 3x^2y + 0.144\sqrt{i}x + 17.241)$$

(LATER)

Angie's homework



Polynomials are created by adding together monomials:

polynomials

→

$$x^2 + 2$$

binomial

$$4x^3 + 2x + 1$$

trinomial

~~$$x^2 + x^{-1}$$~~

- Binomials are polynomials that have two terms
- Trinomials are polynomials that have 3 terms

Degree:

• The "level" of a polynomial's
exponents (or monomial's)

x^2 → 2nd degree monomial

$x^4 + 1$ → 4th degree binomial

22 → 0 degree monomial ($22x^0$)

x^{2+4} → 6th degree monomial

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

5th deg.

2nd deg.

5th degree polynomial

Monomials will never have addition or subtraction in them.

$$x^2$$

$$4x^4y^2$$

~~$$4x^2 + y$$~~

When writing a polynomial:

- Order the terms by decreasing degree:
Start with the highest degree term,
End with the lowest
- Put the variables in alphabetic order
within each term

$$\textcircled{29} \quad f(x) = 3x^2 + x - 7$$

$$g(x) = -x^2 + 5x - 2$$

$$\begin{aligned} f(x) + g(x) &= 3x^2 + x - 7 + (-x^2 + 5x - 2) \\ &= 2x^2 + 6x - 9 \end{aligned}$$

$$\begin{aligned} f(x) - g(x) &= 3x^2 + x - 7 - (-x^2 + 5x - 2) \\ &= 3x^2 + x - 7 + x^2 - 5x + 2 \\ &= 4x^2 - 4x - 5 \end{aligned}$$

$$\textcircled{32} \quad 3r^2s + 5rs + 3 + (-8rs^2 - 9rs - 12)$$

$$3r^2s - 8rs^2 - 4rs - 9$$

$$\textcircled{35} \quad (8a^2b - 6a) - (2a^2b - 4b + 19)$$

$$8a^2b - 6a - 2a^2b + 4b - 19$$

$$6a^2b - 6a + 4b - 19$$

$$3xy + 3x =$$

$$3xy + 4xy = 7xy$$

$$4x^2y + 2xy^2 =$$

$$4x^2y + 2x^2y = 6x^2y$$

Quiz: due 12:02

— What is a monomial?

(3pts)

Multiplying polynomials

Can consist of lots of different pieces!

Multiplying monomials

1. Multiply non-variable #'s together
2. Multiply like variables (use exponent rules)
3. Write your answer with variables in alphabetic order

$$4x \cdot 6x = 24x^2$$

$$4y^2 \cdot 7x = 28xy^2$$

$$6xy^2 \cdot 3x^2y^2 = 18x^3y^4$$

• Multiplying monomial by a polynomial:

1. Multiply each term in the polynomial by the monomial
2. Simplify the resulting expression by combining terms

$$4x^2y \cdot (3x^2 + 2xy - 6y - 2)$$

$$12x^4y + 8x^3y^2 - 24x^2y^2 - 8x^2y$$

• Multiplying polynomials:

1. Multiply each term in the first polynomial by each term in the second

2. Combine like terms

$$(4x^2 + y)(2x^2y + 3xy + 4x + 2y + 7)$$

$$8x^4y + 12x^3y + 16x^3 + 8x^2y + 28x^2 + 2x^2y^2 + 3xy^2 + 4xy + 2y^2$$

$$8x^4y + 12x^3y + 16x^3 + 8x^2y + 28x^2 + 2x^2y^2 + 3xy^2 + 4xy + 2y^2 + 7y$$

$$8x^4y + 12x^3y + 2x^2y^2 + 16x^3 + 8x^2y + 3xy^2 + 28x^2 + 4xy + 2y^2 + 7y$$

Find the product.

1. $x^2(6x^2 - 3x - 1)$

$6x^4 - 3x^3 - x^2$

2. $-5a^3(4a^4 - 3a + 1)$

3. $4d^2(-2d^3 + 5d^2 - 6d + 2)$

4. $(3x + 1)(2x - 5)$

$6x^2 - 15x + 2x - 5$
 $6x^2 - 13x - 5$

5. $(2y + 3)(y - 5)$

6. $(6a - 3)(4a - 1)$

7. $(b - 8)(5b - 2)$

$5b^2 - 2b - 40b + 16$
 $5b^2 - 42b + 16$

8. $(8m + 7)(2m + 3)$

9. $(-p + 2)(3p^2 + 1)$

Homework:

- Finish h/w from last night
- p. 565 3-42 (every 3rd), 50