



Warm Up

Factor each of the following:

$$1) 3x^4 - 15x^2 + 24x \\ 3x(x^3 - 5x + 8)$$

$$2) 18a^3b^6 + 27ab^2 - 36ab \\ 9a^2b^5(2a^2b^5 + 3b - 4)$$

$$3) -21rt - 49r^4 - 35r^3t \\ -7r^3(3t + 7r^3 + 5r^2t)$$

$$4) 6xy^2 + 7x^2y + 2y \\ y(6xy + 7x^2 + 2)$$

Simplify then Factor:

$$1) \underline{2x^3} - \underline{5x} + 7 + \underline{6x^3} + \underline{x} + 1 \\ 8x^3 - 4x + 8$$

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

$$2) \underline{-7n^3y} - \underline{5n^2y^3} + \underline{2ny^2} - \underline{n^2y^3} - \underline{n^3y} - \underline{12ny} \\ -8n^3y^4 - 6n^2y^3 + 2ny^2 - 12ny$$

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

Prime factorization of 120

Hint: Product of primes

$$\begin{array}{c} & 60 \\ 2 & \swarrow \quad \searrow \\ 2 & 30 \\ & \swarrow \quad \searrow \\ & 2 \quad 15 \\ & \quad \swarrow \quad \searrow \\ & \quad 3 \quad 5 \end{array}$$
$$\begin{aligned} 120 &= 2 \times 2 \times 2 \times 3 \times 5 \\ &= 2^3 \times 3 \times 5 \end{aligned}$$

Polynomials





Monomial 1 term



Binomial 2 terms



Trinomial 3 terms

How are terms separated?????



Terms are separated by “+” and “-“ signs.





How many terms?

$$4x - 5y + q$$

3

$$5(x - 3y)$$

2

$$\frac{3x - 4}{5}$$

2

Bonus:

How many terms?

$$\underbrace{3x}_{\text{Simplify first}} + \underbrace{4y}_{\text{Simplify first}} - \underbrace{5x}_{\text{Simplify first}} - \underbrace{2y}_{\text{Simplify first}} + \underbrace{x}_{\text{Simplify first}}$$

$$-1x + 2y$$

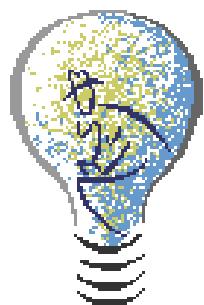
2 terms



Simplify:

$$\underbrace{2x - 7}_{\text{1 term}} + \underbrace{3x^2}_{\text{1 term}} - \underbrace{5x}_{\text{1 term}} - \underbrace{2}_{\text{1 term}} - \underbrace{2x^2}_{\text{1 term}}$$
$$1x^2 - 3x - 9$$

3 terms



Distributing Factor

3.7 Multiplying Polynomials

Expand & Simplify

Rainbow



Expand and collect like terms.

$$4(x - 2) - 2(x + 3)$$

$$\begin{array}{r} \cancel{4x} \quad \cancel{-8} \\ -\cancel{2x} \quad \cancel{-6} \\ \hline \end{array}$$

$$2x - 14$$

$$2x(x^3 - 5x^2 - x - 5)$$

$$2x^4 - 10x^3 - 2x^2 - 10x$$

$$4(3xy + 7x - 5) - 3(2x + 5xy - 1)$$

12xy + 28x -20 -6x -15xy + 3
collect like terms .

-3xy + 22x -17



Numbers, Relations & Functions 10

Name _____

Multiplying Polynomials

Date _____

Find each product.

1) $5(6b + 3)$



2) $8(6r + 3)$



3) $2(8x + y)$



4) $5mn(3m + 2n)$



5) $7(x - 7y)$



6) $2mn(8m - 2n)$

7) $(4x - 2y)(6x + 6y)$

8) $(6x + 3y)(4x - 7y)$

9) $(2x + 5y)(7x - 8y)$

10) $(3x + 6y)(5x - 8y)$

11) $(5x - 4y)(5x^2 - 4xy + 6y^2)$

12) $(8x - 7y)(6x^2 + 8xy + 3y^2)$

13) $(6a^2 - 2a - 3)(8a + 2)$

14) $(2k^2 + 8k - 2)(7k + 4)$

15) $(7a^2 - 2ab + 2b^2)(a^2 - 2ab - 8b^2)$

16) $(x^2 - 4xy + 2y^2)(x^2 - 2xy - 7y^2)$