Prime #'s 2, 3, 5, 7, 11, 13...

Geometry
Factoring by GCF

Name: Key
Date: _____

Greatest Common Factor (GCF)

1. 3 9 12 ___3___

2. 8 12 20 ___4___

3. 28 49 ___7___

4. x x^2 ___x___

5. x^3 x^2 x^7 ___x^2___

6. $6x^2$ $8x$ $14x^3$ ___$2x$___

Factoring Polynomials

The GCF for a polynomial is the largest monomial that divides (is a factor of) into each term of the polynomial.

Ex: What is the GCF? $4x^2 - 16x$ Answer: $4x$

check by distributing

Factor the following polynomials by removing the GCF. GCF (what's leftover)

1. $15x + 9xy$ ___$3x(5+3y)$___

2. $12a^2b - 3a^2b^3 + 18a$ ___$3a(4ab - ab^3 + 6)$___

3. $-8xy^3 + 20x^2y^2z - 4x$ ___$-4x(2y^3 - 5xy^2z + 1)$___

4. $32m^4n + 24mn^2 - 16mn$ ___$8mn(4m^3 + 3n - 2)$___

If an expression will not factor then it is said to be Prime

Factor each. If it will not factor (does not have a GCF), write PRIME.

1. $3x - 5x^2$ ___$x(3-5x)$___

2. $4ab + 5ba^2$ ___$ab(4+5a)$___

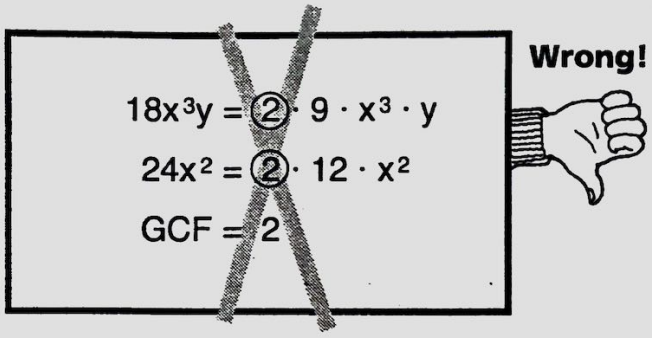
3. $8z^2 + 21r^2$ ___Prime___

4. $4m^2 + 6m - 1$ ___Prime___

Keys

Name _____

Greatest Common Factor of Monomials



$18x^3y = 2 \cdot 9 \cdot x^3 \cdot y$
$= ② \cdot ③ \cdot 3 \cdot ⓧ \cdot ⓧ \cdot x \cdot y$

$24x^2 = 2 \cdot 12 \cdot x^2$
$= 2 \cdot 2 \cdot 6 \cdot x \cdot x$
$= ② \cdot 2 \cdot 2 \cdot ③ \cdot ⓧ \cdot ⓧ$

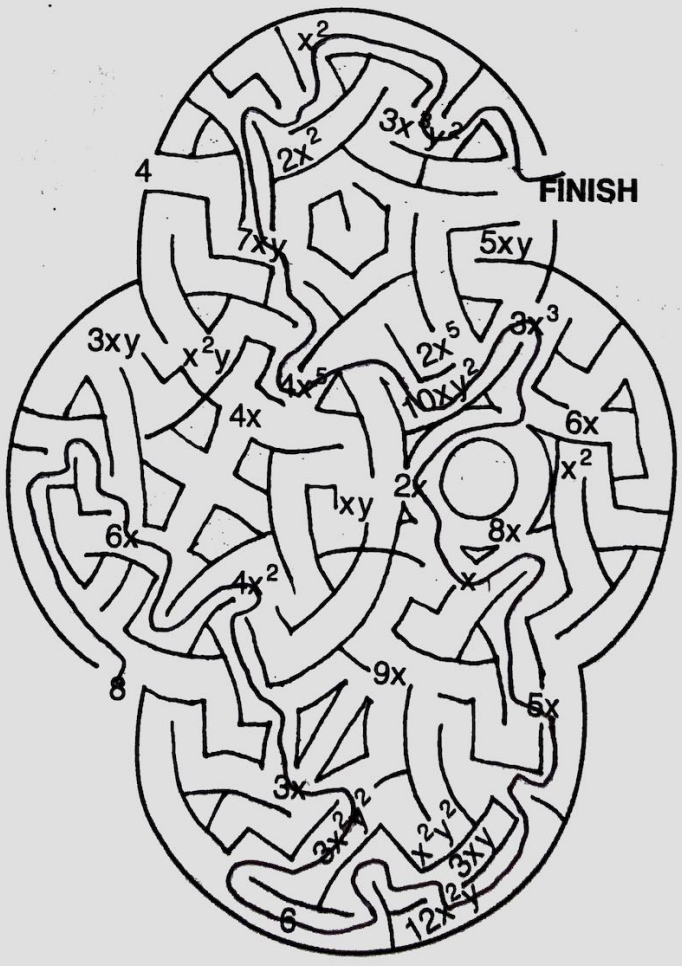
GCF = $2 \cdot 3 \cdot x \cdot x = 6x^2$

Quick Review

Completely factor the numeric coefficients within each monomial. A shortcut for finding the greatest common factor (GCF) of a variable is to compare the powers of variables that are in both monomials and choose the power which is the least amount.

Find the GCF for each pair. Follow your answers in order through the maze.

1. $16x^2$ and 8 — 8
2. $18x$ and $24x^2$ — 6x
3. $12x^3$ and $4x^2$ — $4x^2$
4. $9x^3y$ and $12x$ — 3x
5. $24x^2y^4$ and $21x^2y^2$ — $3x^2y^2$
6. $6y$ and $6x^2$ — 6
7. $12x^2y^3$ and $24x^2y$ — $12x^2y$
8. $10x^3$ and $35x$ — 5x
9. $9x^2$ and $11x$ — x
10. $8xy$ and $18x^2$ — 2x
11. $9x^4$ and $15x^3$ — $3x^3$
12. $20x^2y^2$ and $30xy^3$ — $10xy^2$
13. $4x^7$ and $12x^5$ — $4x^5$
14. $21xy$ and $14x^2y^2$ — 7xy
15. $15x^3$ and $8x^2$ — x^2
16. $6x^3y^4$ and $9x^5y^2$ — $3x^3y^2$



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Why Are Handcuffs Like Souvenirs?

Use the distributive property to complete each statement below. Find your answer in the corresponding answer column. Write the letter of that exercise in the box that contains the number of the answer.

(A) $7(a+b) = 7a + 7b$

(R) $4(5+x) = 20 + 4x$

(Y) $3(2x+9) = 6x + 27$

(S) $8(3x+1) = 24x + 8$

(O) $a(4+b) = 4a + ab$

(E) $x(y+10) = xy + 10x$

(I) $2(7x+4y) = 14x + 8y$

(D) $6(9+5x) = 54 + 30x$

(W) $x(a+3b) = xa + 3bx$

(E) $a(8x+2y) = 8ax + 2ay$

(T) $\frac{1}{2}(4a+10) = 2a + 5$

(R) $\frac{2}{3}(12+9y) = 8 + 6y$

Answers:

(18) ax

(17) $4a$

(9) $7b$

(1) 5

(14) $4x$

(23) $24x$

(10) $30x$

(6) $6y$

(3) xy

(4) 27

(7) $2ay$

(20) $8y$

(O) $5x + 5y = 5(x + y)$

(T) $9a + 9b = 9(a + b)$

(W) $4m + 4n = 4(m + n)$

(H) $ab + 3a = a(b + 3)$

(E) $xy + 15x = x(y + 15)$

(A) $bu + uv = u(b + v)$

(F) $\frac{2}{5}m + \frac{2}{5}n = \frac{2}{5}(m + n)$

(M) $\frac{3}{4}a + \frac{3}{4}b + \frac{3}{4}c = \frac{3}{4}(a + b + c)$

(S) $7ax + 2ay = a(7x + 2y)$

(T) $4kx + 11ky = k(4x + 11y)$

(R) $3ay + 8by = y(3a + 8b)$

Answers:

(16) 4

(5) u

(22) a

(11) x

(21) $2y$

(13) y

(19) $3a$

(2) 3

(12) m

(15) k

(8) $\frac{3}{4}$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
T	h	e	y	a	r	e	m	a	d	e	F	O	r	+	w	O	w	r	i	S	+	S

They are made For two wrists

OBJECTIVE 1-e: To use the distributive axiom to multiply or factor expressions.

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