

L7: Factoring Using GCF

Scheduled Review

Factor each polynomial

$x^2 + 5x + 6$

$$\begin{array}{|l} \hline (x+3)(x+2) \\ x^2 + 2x + 3x + 6 \\ x^2 + 5x + 6 \checkmark \end{array}$$

$2x^2 + 7x - 4$

$$\begin{array}{|l} \hline (2x-1)(x+4) \\ 2x^2 + 8x - x - 4 \\ 2x^2 + 7x - 4 \checkmark \end{array}$$

The greatest common factor (GCF) is the largest number that can divide into each term.

Find the GCF of

63 and 27

9

100 and 35

5

When finding the GCF of algebraic terms your GCF might include a variable as well. If the variable is in all of the terms then you use the variable to the smallest power in the GCF.

Find the GCF of

 $9x$ and $6x^2$ $3x$ $-16x^4y^6$ and $12x^5y^2$ $4x^4y^2$

① find GCF 9 & 6

 $12y^5$ and $8y^8$ $4y^5$ $20x^5yz^2$ and $15x^2y^3$ $5x^2y$

When factoring polynomials you should first simplify the polynomial if possible. Next find the GCF if possible. You get the second factor by dividing the simplified poly by the GCF.

Factor each poly

$$18m^5 + 6m^7 \quad \text{GCF} = 6m^5$$

$$6m^5(3 + m^2)$$

$$m^5 \times m^2 = m^7$$

$$-9y^2 - 6y - 6 \quad \text{GCF} = -3$$

$$-3(3y^2 + 2y + 2)$$

*y is not in each term so we can't factor out.

$$12x^3y^2 - 20xy^5 + 8x^2y^3 \quad \text{GCF} = 4xy^2$$

$$4xy^2(3x^2 - 5y^3 + 2xy)$$

$$7x^2 - 2x + 9 + 3x^2 - 3x + 6$$

$$10x^2 - 5x + 15 \quad \text{GCF: } 5$$

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

Sometime the common factor is not a monomial but a binomial.

$$2x(\underline{x-1}) + 3(\underline{x-1}) \quad \text{GCF} = (x-1)$$

$$(x-1)(2x+3)$$

$$4x(\underline{3x+4}) - 2(\underline{3x+4}) \quad \text{GCF} = (3x+4)$$

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

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