

Factoring Out the GCF Notes

Definition:

What is a GCF? **Greatest Common Factor**
 The largest "thing" that goes into all terms. *Can be numbers and variables

Find the GCF between 14 and 63.

14: 1, 2, 7, 14
 63: 1, 3, 7, 9, 21, 63

$GCF = 7$

Factor out the GCF:

$(2x + 12)$

GCF: 2

$2(x + 6)$

Factor out the GCF:

$(3x^4 + 12x^3 - 9x^2 + x)$

$3x \cdot x \cdot x \cdot x + 12x \cdot x \cdot x - 9x \cdot x + x$

GCF: x

$x(3x^3 + 12x^2 - 9x + 1)$

Factor out the GCF:

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

$x \cdot x \cdot x \cdot x \cdot y + x \cdot x \cdot x \cdot y \cdot y + x \cdot x \cdot y \cdot y \cdot y + x \cdot y \cdot y \cdot y \cdot y$

GCF: xy

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

$$3x^2y^3 + 9x^4y^5$$

$$3 \textcircled{xx} \textcircled{yyy} + 9 \textcircled{xxxx} \textcircled{yyy} yy$$

$$G(F: 3x^2y^3$$

$$3x^2y^3(1 + 3x^2y^2)$$