

Factoring

By: greatest common factor (GCF)

ex: 14, 42, 56

$$\begin{array}{r} 2 \overline{) 42} \\ 3 \overline{) 21} \\ 7 \end{array}$$

$$\begin{array}{r} 2 \overline{) 56} \\ 2 \overline{) 28} \\ 2 \overline{) 14} \\ 7 \end{array}$$

$$7 \cdot 7 = 14 \quad \boxed{\text{GCF} = 14}$$

ex: $4x^2 + 40x$

$$\boxed{4x(x + 10) = \text{GCF}}$$

ex: 40 and 45 = $\boxed{\text{GCF} = 5}$

GCF of monomial groups:

ex: $8b^2, 12b^2, 16b^2,$

$$\text{* Greatest common factor is 4, so } \boxed{\text{GCF} = 4b^2(2 + 3 + 4)}$$

factoring expressions:

$$\text{ex: } x^2 - x - 56 = \begin{array}{l} (x - 8) \\ (x + 7) \end{array}$$

because, $-8 \cdot 7 = -56$.

$$-8 + 7 = -1(-x),$$

When the sign after the middle number (x) is negative, it means the signs in your answers will be different $(- + +)$

$$\text{ex: } x^2 + 18x + 77 = \begin{array}{l} (x + 7) \\ (x + 11) \end{array}$$

When the sign after the center number is positive (+),

both your resulting answers will be positive