

# M10 - 5.1 - Factoring GCF Notes

## Remove Greatest Common Factor "GCF."

$$12x + 8 =$$

$$\boxed{4(3x + 2)} \quad GCF = 4$$

4 times what is 12x      4 times what is 8

Divide both terms by GCF

$$\frac{12x}{4} + \frac{8}{4} = 3x + 2$$

Answer goes in brackets

Check your answer by Distribution

$$\begin{matrix} \curvearrowright & & \curvearrowleft \\ 4(3x + 2) & & \\ & & 12x + 8 \end{matrix}$$

The answer should be the same as the original question.

$2x^2 + 3x =$ $\boxed{x(2x + 3)} \quad GCF = x$	$12x^2 + 8x =$ $\boxed{4x(3x + 2)} \quad GCF = 4x$
$x^2 + x^3 =$ $\boxed{x^2(1 + x)} \quad GCF = x^2$	$8x^2y + 4xy =$ $\boxed{4xy(2x + 1)} \quad GCF = 4xy$

$$-2x + 8$$

$$\boxed{-2(x - 4)} \quad GCF = -2$$

$8 \div -2 = -4$

$(-x - 2) =$ $-1(x + 2) =$ $\boxed{-(x + 2)} \quad GCF = -1$	$(2 - x) =$ $-1(-2 + x) =$ $\boxed{-(x - 2)} \quad GCF = -1$ Rearrange Order of the Terms
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$ab + cb$ $\boxed{b(a + c)} \quad GCF = b$ They both have a $b$ Take out a $b$	$x(x + 2) + 4(x + 2) =$ $\boxed{(x + 2)(x + 4)} \quad GCF = (x + 2)$ They both have a $(x + 2)$ Take out a $(x + 2)$ <div style="border: 1px solid black; padding: 2px; display: inline-block;">Poetry</div>
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$2x^2 + 3x + 4x + 6$ $(2x^2 + 3x) + (4x + 6)$ $x(2x + 3) + 2(2x + 3)$ $\boxed{(2x + 3)(x + 2)} \quad GCF$	Group GCF, GCF $2x^2 - 6 + 3x + 4x$ $2x^2 + 3x + 4x + 6$ $\boxed{\dots}$ Rearrange Order of Terms
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$2x - \frac{1}{2}$ $\boxed{2(x - \frac{1}{4})} \quad GCF = 2$ $\frac{1}{2} \div \frac{1}{2} = \frac{1}{2} \times \frac{1}{2} = 1/4$	$(\frac{1}{2}x + 4)$ $\boxed{\frac{1}{2}(x + 8)} \quad GCF = \frac{1}{2}$ $4 \div \frac{1}{2} = 4 \times \frac{2}{1} = 8$
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