Do Now:

1. Factor $6x^3 + 2x^2$	2. Multiply $3x(x^2 + 4x - 2)$
3. If $3x$ is one factor of $3x^3 + 12x^2 - 6x$, what is the other factor? a) $3x$ b) $x^3 + 4x^2 - 2x$ c) $x^2 + 4x - 2$ d) $x^3 + 4x^2 - 2x$	4. Rewrite using the distributive property: $3x + 3y$

Aim: GCF FACTORING-DAY 2

How do I find GCF?:

LADDER METHOD

1) Find the smallest prime number that can go into both numbers
2) Divide both numbers by the prime number
3) Continue factoring until you have reached one on one or both numbers
4) To record the GCF, write down all the factors on the left side of the factor ladder
5) Write your final answer using exponents

$$
\begin{array}{c|cc}
2 & 12x^3 & 24x^2 \\
\hline
2 & 6x^3 & 12x^2 \\
\hline
3 & 3x^3 & 6x^2 \\
\hline
x & 1x^2 & 2x \\
\hline
x & 1x & 2 \\
\hline
\end{array}
$$

GCF = 2 • 2 • 3 • x • x = $12x^2$

EXAMPLES:

    (a) x^3 and x^6 (b) $8x^4y^9$ and $20x^4y^6$

Exercise 1: **Factor out the greatest common factor (constant only)**

1) $3x - 12$	2) $16b + 24$
Check:	**Check:**
3) $7y - 7$	4) $9x^2 + 6x - 15$
Check:	**Check:**

Exercise 2: **Factor out the greatest common factor (variable only)**

1) $2x^2 - x$ **Check:**	2) $6y^2 + 11y^5$ **Check:**
3) $w^7 + 4w^4$ **Check:**	4) $x^7 + 6x^5 + x^6$ **Check:**

Exercise 3: Factor out the greatest common factor (mixed)

1) $\qquad x^2y^3 + xy$	2) $\qquad 3x - 6x^2$
Check:	Check:
3) $\qquad 3b^3 + 6b^2 - 15b$	4) $\qquad 25a^3bc - 50a^2bc + 105a^3c$
Check:	Check:

More Practice!

1. What is the greatest common factor of $24a^2b$ and $18abc$? 1) 6 2) $6ab$ 3) $6a^2b$ 4) $6abc$	2. Expressed in factored form, the binomial $2x^2y - 4xy^3$ is equivalent to 1) $2xy(x - 2y)$ 2) $2xy(xy - 4y)$ 3) $2xy(x - 2y^2)$ 4) $2x^2y^3(y - 2)$
3. $x(x+3) + 2(x+3)$	4. $y(y-5) + 7(y-5)$
5. $x(x-1) + 4(x-1)$	6. $y(y+10) - 9(y+10)$

7. $x(x+8)-3(x+8)$	8. $y(y-6)+11(y-6)$
9. $24x^2y^6 - 16x^6y^2 + 4xy^2$	10. $6x^{14}y^{20} - 8x^5y^6 + 24x^8y^{10}$