Finding the Greatest Common Factor (GCF)

Find the GCF of $15x^3 - 25x^2 + 10x$

1. Factor each term such that it is the product of primes and variables in exponential form.
2. Write down all the factors (from step 1) that are common to every term.
3. Multiply the factors from step 2 to obtain the Greatest Common Factor.

$15x^3$		5	3			x	x	x	List all the factors – even those for the variable
$-25x^2$	-1	5		5		x	x		Include the -1 as a factor if the term is negative
$+10x$		5			2	x			List all the factors
GCF:		**5**				**x**			The product of the common factors is the GCF: 5x

Note: The exponent on the variable in the GCF will be the smallest exponent appearing on the variable in the group of terms being considered.

One can often visually determine the Greatest Common Factor. If not, use the factor-tree table.

$15x^3 - 25x^2 + 10x$ $-42w^4z + 28w^3a$ $(y-4)a + (y-4)b$

GCF: _____   GCF: _____   Include the negative.   GCF: _____

TRY – What is the GCF for each of these?

$-3x + 6$ $10x^2 + 5x$ $-2w^4 + 6w^3$ $(h+5)x + (h+5)y$