Factoring - Greatest Common Factor

Terms			Greatest Common Factor
3, 15	3: $1\cdot 3$	15: $1\cdot 15$, $3\cdot 5$	GCF = 3
$4x$, 20	4: $1\cdot 4$, $2\cdot 2$	20: $1\cdot 20$, $2\cdot 10$, $4\cdot 5$	GCF = 4
x^3, x^2	$x\cdot(x\cdot x)$	$(x\cdot x)$	GCF = x^2
$-2x^2y^3$, $4x^5y$	2: $1\cdot 2$; $(x\cdot x)$ $y\cdot y\cdot(y)$	4: $1\cdot 4$, $(2\cdot 2)$; $(x\cdot x)x\cdot x\cdot x\,(y)$	GCF = $-2x^2y$
$2(y+1)$, $9(y+1)$	$(y+1)$	$(y+1)$	GCF = $(y+1)$

1. Factor each polynomial by finding the GCF.

a) $6x^2 - 18$

$\frac{6x^2}{6}$ $\frac{18}{6}$

GCF = 6

$\boxed{6(x^2-3)}$

b) $8y^2z + 4y^1$

$\frac{8y^2z}{4y^1}$ $\frac{4y^1}{4y^1}$

GCF = $4y^1$

$\boxed{4y(2y^1z+1)}$

c) $20y^5 + 12y^3 - 8y^2$

$\frac{20y^5}{4y^2}$ $\frac{12y^3}{4y^2}$ $\frac{8y^2}{4y^2}$

GCF = $4y^2$

$\boxed{4y^2(5y^3+3y-2)}$

d) $2x^3 - 5y^4$

GCF = NONE

$\boxed{\text{can not be factored}}$

e) $30m^3 + 60m^2 + 6m$

$\frac{30m^3}{6m^1}$ $\frac{60m^2}{6m^1}$ $\frac{6m}{6m}$

GCF = $6m$

f) $x^4 - x^3$

$\frac{x^4}{x^3}$ $\frac{x^3}{x^3}$

GCF = x^3

$\boxed{6m(5m^2+10m^1+1)}$ $\boxed{x^3(x-1)}$

g) $2\cancel{(x+1)}+3y\cancel{(x+1)}$ GCF $=(x+1)$

$\cancel{(x+1)}$ $\cancel{(x+1)}$

$\boxed{(x+1)(2+3y)}$

h) $x\cancel{(y-5)}-\cancel{(y-5)}$ GCF $=(y-5)$

$\cancel{(y-5)}$ $\cancel{(y-5)}$

$\boxed{(y-5)(x-1)}$