Factoring
Factoring Out GCF
Worked Out Solutions

Factoring Out GCF

$$a \cdot b + a \cdot c = a(b + c)$$
$$a \cdot b - a \cdot c = a(b - c)$$

Name: _____

Factor out the GCF (greatest common factor).

1. $x^2 - 2x$ $= x \cdot x - x \cdot 2$ $= x(x - 2)$	2. $15y^3 + 10y$ $= 5y \cdot 3y^2 + 5y \cdot 2$ $= 5y(3y^2 + 2)$	3. $12xy - 8x^2y^2$ $= 4xy \cdot 3 - 4xy \cdot 2xy$ $= 4xy(3 - 2xy)$
4. $2x^2 - 8x + 18$ $= 2 \cdot x^2 - 2 \cdot 4x + 2 \cdot 9$ $= 2(x^2 - 4x + 9)$	5. $a^4 - 11a^3 - a^2$ $= a^2 \cdot a^2 - a^2 \cdot 11a - a^2 \cdot 1$ $= a^2(a^2 - 11a - 2)$	6. $3x^3 - 12x^2 - 3x$ $= 3x \cdot x^2 - 3x \cdot 4x - 3x \cdot 1$ $= 3x(x^2 - 4x - 1)$
7. $\frac{1}{2}p^2 - \frac{7}{2}p$ $= \frac{1}{2} \cdot p - \frac{1}{2} \cdot 7p$ $= \frac{1}{2}p(p - 7)$	8. $-10b^2 - 40b + 25$ $= -5 \cdot 2b^2 - 5 \cdot 8b - 5 \cdot (-5)$ $= -5(2b^2 + 8b - 5)$	9. $24x^2y^3 - 36xy^2$ $= 12xy^2 \cdot 2xy - 12xy^2 \cdot 3$ $= 12xy^2(2xy - 3)$
10. $36x^4y - 42x^2y^3$ $= 6x^2y \cdot 6x^2 - 6x^2y \cdot 7y^2$ $= 6x^2y(6x^2 - 7y^2)$	11. $2x^3y + 8x^2y^2 - 6xy^3$ $= 2xy \cdot x^2 + 2xy \cdot 4xy - 2xy \cdot 3y^2$ $= 2xy(x^2 + 4xy - 3y^2)$	12. $-36u^4 + 24u^2 - 20u$ $= -4u \cdot 9u^3 - 4u \cdot (-6u) - 4u \cdot 5$ $= -4u(9u^3 - 6u + 5)$