

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).

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