

# WarmUp



1.  $(x+4)(x-2)$

2.  $(5a^3b^5c^{-3})(10a^{-1}b^4)(2a^2b^{-1}c^2)$

3.  $-3m^5n^{-4}(9m^2-6n^{-5}+2)$

4.  $(2x-1)(3x+2)$

*You have 10 minutes.*

5.  $(3x-2y)(x+4y)$



$$(x+4)(x-2)$$

$$= \underline{x^2} \quad \underline{-2x} \quad \underline{+4x} \quad \underline{-8}$$
$$= \underline{x^2} + \underline{2x} - \underline{8}$$



2.

$$(\underline{5}a^{\underline{3}}b^{\underline{5}}c^{\underline{-3}})(\underline{10}a^{\underline{-1}}b^{\underline{4}})(\underline{2}a^{\underline{2}}b^{\underline{-1}}c^{\underline{2}})$$

$$= \underline{100}a^{\underline{4}}b^{\underline{8}}c^{\underline{-1}}$$

OR

$$\frac{100a^4b^8}{c}$$

$$5 \times 10 \times 2 = 100$$

$$a^{3+(-1)+2} = a^4$$

$$b^{5+4+(-1)} = b^8$$

$$c^{-3+2} = c^{-1}$$



$$3. \quad -3m^5n^{-4}(9m^2-6n^{-5}+2)$$

$$= -27m^7n^{-4} + 18m^5n^{-9} - 6m^5n^{-4}$$

OR

$$\frac{-27m^7}{n^4} + \frac{18m^5}{n^9} - \frac{6m^5}{n^4}$$



$$(2x-1)(3x+2)$$

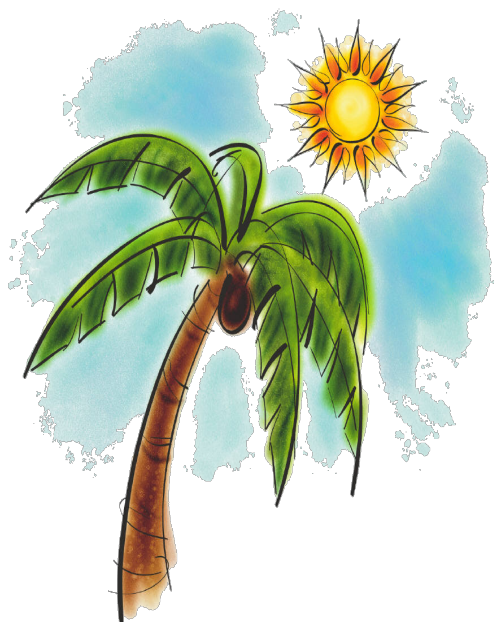
$$= 6x^2 + \underline{4x} - \underline{3x} - 2$$
$$= 6x^2 + \underline{1x} - 2$$



$$(3x-2y)(x+4y)$$

$$= 3x^2 + \underline{12xy} - \underline{2xy} - 8y^2$$
$$= 3x^2 + \underline{\underline{10xy}} - 8y^2$$

*Simplify:*



$$(2x+3)^2$$

$$(2x+3)(2x+3)$$

$$4x^2 + 6x + 6x + 9$$

$$4x^2 + 12x + 9$$

**Try This!!**

$$(5x-3)^2$$



$$(5x-3)^2$$
$$(5x-3)(5x-3)$$
$$25x^2 - \underline{15x} - \underline{15x} + 9$$
$$25x^2 - 30x + 9$$

*Simplify:*



$$2(x+2)(x-5)$$

multiply brackets  
first

$$2(x^2 - 5x + 2x - 10)$$

$$2(x^2 - 3x - 10)$$

$$\boxed{2x^2 - 6x - 20}$$

*Simplify:*



$$-2(3x-1)(2x+2)$$

**Try This!!**

*Remember,  
multiply the  
brackets first!*



$$5(2x-1)(3x+4)$$

$$\begin{aligned} & 5(2x-1)(3x+4) \\ & 5(6x^2+8x-3x-4) \\ & 5(6x^2+5x-4) \\ & 30x^2+25x-20 \end{aligned}$$



① The Ultimate!

3 terms  $\times$  2 terms = 6 terms

$$(x^2 + 5x - 3)(x^2 + 3)$$

$$x^4 + 3x^2 + 5x^3 + 15x - 3x^2 - 9$$

$$x^4 + 5x^3 + 0x^2 + 15x - 9$$

$$\boxed{x^4 + 5x^3 + 15x - 9}$$

$$\begin{aligned}
 \textcircled{1} \quad & (5n-6)(3n^2+7n-1) \\
 & = \underline{15n^3} + \underline{35n^2} - \underline{5n} - \underline{18n^2} - \underline{42n} + \underline{6} \\
 & = \underline{15n^3} + \underline{17n^2} - \underline{47n} + \underline{6}
 \end{aligned}$$

$$\begin{aligned}
 \textcircled{3} \quad & (-b-6)^2 \\
 & = (-b-6)(-b-6) \\
 & = b^2 + \underline{6b} + \underline{6b} + 36 \\
 & = b^2 + \underline{12b} + 36
 \end{aligned}$$

$$\begin{aligned}
 \textcircled{10} \quad & 2(x-1)(6x+3) \\
 & = 2(6x^2+3x-6x-3) \\
 & = 2(6x^2-3x-3) \\
 & = 12x^2-6x-6
 \end{aligned}$$

$$\begin{aligned}
 \textcircled{14} \quad & (-5m+8n)(5m+6n) \\
 & = -25m^2 - \underline{30mn} + \underline{40mn} + 48n^2 \\
 & = -25m^2 + \underline{10mn} + 48n^2
 \end{aligned}$$

$$\textcircled{a} \quad 5v^4(2v^2+4v+8)$$

$$10v^{4+2} + 20v^{4+1} + 40v^{4+0}$$

$$10v^6 + 20v^5 + 40v^4$$

$$\textcircled{b} \quad (2k+3)(7k+1)$$

$$14k^2 + 14k + 21k + 21$$

$$14k^2 + 35k + 21$$



Answers:

$$\textcircled{1} 15n^3 + 17n^2 - 47n + 6$$

$$\textcircled{2} 8x^3 - 26x^2 + 36x - 30$$

$$\textcircled{3} b^2 + 12b + 36$$

$$\textcircled{4} -40v^2 + 23v + 30$$

$$\textcircled{5} 15a^3 - 30a^2 + 25a$$

$$\textcircled{6} 24k^3 - 48k^2 + 8k + 16$$

$$\textcircled{7} 49a^2 - 112a + 64$$

$$\textcircled{8} 2n^2 + 10n$$

$$\textcircled{9} 5m^2 + 20m$$

$$\textcircled{10} 12x^2 - 6x - 6$$

$$\textcircled{11} -12p^2 + 72p + 84$$

$$\textcircled{12} 56v^3 + 64v^2$$

$$\textcircled{13} 32x^3 + 0x^2 - 6x + 9$$

$$\textcircled{14} -25m^2 + 10mn + 48n^2$$

$$\textcircled{15} -42x^2 - 70xy - 28y^2$$

$$\textcircled{16} 64r^2 + 96r + 36$$