

Products: $(a + b)^2$, $(a - b)^2$, $(a + b)^3$, $(a - b)^3$

EXAMPLEFind $(2x - 4y)^2$.Model method: $(a + b)^2 = a^2 + 2ab + b^2$ Let $a = 2x$, $b = -4y$.

$$\begin{aligned}(2x - 4y)^2 &= (2x)^2 + 2(2x)(-4y) + (-4y)^2 \\ &= 4x^2 - 16xy + 16y^2\end{aligned}$$

Directions Write the expressions in expanded form.

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|------------------|-------|------------------|-------|
| 1. $(2x + 6)^2$ | _____ | 6. $(3a - 4b)^2$ | _____ |
| 2. $(3x + 4)^2$ | _____ | 7. $(6x - 6y)^2$ | _____ |
| 3. $(5x - 1)^2$ | _____ | 8. $(q + 5r)^2$ | _____ |
| 4. $(3x + 2y)^2$ | _____ | 9. $(4t - 3v)^2$ | _____ |
| 5. $(4m + 4n)^2$ | _____ | 10. $(8x - y)^2$ | _____ |

EXAMPLEFind $(3x - y)^3$.

Factor method:

$$\begin{aligned}(3x - y)^3 &= (3x - y)(3x - y)^2 \\ &= (3x - y)(9x^2 - 6xy + y^2) \\ &= 3x(9x^2 - 6xy + y^2) - y(9x^2 - 6xy + y^2) \\ &= 27x^3 - 18x^2y + 3xy^2 - 9x^2y + 6xy^2 - y^3 \\ &= 27x^3 - 27x^2y + 9xy^2 - y^3\end{aligned}$$

Model method: $(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$ Let $a = 3x$, $b = -y$.

$$\begin{aligned}(3x - y)^3 &= (3x)^3 + 3(3x)^2(-y) + 3(3x)(-y)^2 + (-y)^3 \\ &= 27x^3 - 27x^2y + 9xy^2 - y^3\end{aligned}$$

Directions Write the expressions in expanded form.

- | | |
|-------------------|-------|
| 11. $(y + z)^3$ | _____ |
| 12. $(3x + 4)^3$ | _____ |
| 13. $(2x - y)^3$ | _____ |
| 14. $(3x + 2y)^3$ | _____ |
| 15. $(5x - 3y)^3$ | _____ |