# Every Term, Every Sign

MV06-V1 · storyboard · MV06 Expand and subtract with several letters. Read each picture with its sentences.

**Picture 1**

Expand $3xy(x - y)$.

$$3xy \cdot x + 3xy \cdot (-y)$$ every term

$$= \boxed{3x^2y - 3xy^2}$$

1. Expand 3xy(x – y).
2. Multiply each term in the bracket by 3xy.
3. That gives $3x^2y - 3xy^2$.
4. These are not like terms, so that is the answer.

**Picture 2**

**Trap** $3xy(x - y)$

$\times\ 3x^2y - y$

✓ $3x^2y - 3xy^2$

5. Watch for the trap: multiplying only the first term.
6. 3xy multiplies every term.

**Picture 3**

Simplify $3(x - xy + 3) - 4(x + xy + 7)$.

$$3x - 3xy + 9 - 4x - 4xy - 28 \quad -4 \text{ changes every sign}$$

$$= (3x - 4x) + (-3xy - 4xy) + (9 - 28) \quad \text{group}$$

$$= \boxed{-x - 7xy - 19}$$

7. Now simplify 3(x – xy + 3) – 4(x + xy + 7).
8. Expand each bracket.
9. Negative four times every term: −4x, −4xy and −28.
10. Group the like terms.
11. So it is –x – 7xy – 19.

**Picture 4**

**Trap** $-4(x + xy + 7)$

$\times$ $-4x + 4xy + 28$

✓ $-4x - 4xy - 28$

12. Watch for the trap: sign slips with a negative.
13. Negative four times every term is negative.