

**Example 16** **Self Tutor**Expand and simplify: **a**  $(x + 4)(x + 5)$     **b**  $(3x + 1)(4x - 3)$ 

**a**  $(x + 4)(x + 5)$

$$\begin{aligned} &= x \times x + x \times 5 + 4 \times x + 4 \times 5 \\ &= x^2 + 5x + 4x + 20 \\ &= x^2 + 9x + 20 \end{aligned}$$

**b**  $(3x + 1)(4x - 3)$

$$\begin{aligned} &= 3x \times 4x + 3x \times -3 + 1 \times 4x + 1 \times -3 \\ &= 12x^2 - 9x + 4x - 3 \\ &= 12x^2 - 5x - 3 \end{aligned}$$

**Example 17** **Self Tutor**Expand and simplify: **a**  $(2x + 5)(2x - 5)$     **b**  $(3x + 4)^2$ 

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

$$\begin{aligned} &= 4x^2 - 10x + 10x - 25 \\ &= 4x^2 - 25 \end{aligned}$$

**b**  $(3x + 4)^2$

$$\begin{aligned} &= (3x + 4)(3x + 4) \\ &= 9x^2 + 12x + 12x + 16 \\ &= 9x^2 + 24x + 16 \end{aligned}$$