

$$(1) \quad \text{a) } (x+1)^2 = (x+1)(x+1) = x^2 + x + x + 1 = x^2 + 2x + 1$$

$$\text{b) } (x-3)^2 = (x-3)(x-3) = x^2 - 6x + 9$$

$$\text{c) } \left(x - \frac{3}{2}\right)^2 = \left(x - \frac{3}{2}\right)\left(x - \frac{3}{2}\right) = x^2 - 3x + \frac{9}{4}$$

$$(2) \quad \text{a) } x^2 + 2x + 1 = (x+1)^2$$

$$\text{b) } x^2 + 3x + \frac{9}{4} = \left(x + \frac{3}{2}\right)^2$$

$$\text{c) } x^2 + \frac{1}{2}x + \frac{1}{16} = \left(x + \frac{1}{4}\right)^2$$

$$(3) \quad \text{a) } x^2 + 8x + 16 = (x+4)^2$$

$$\text{b) } x^2 + \frac{2}{3}x + \frac{1}{9} = \left(x + \frac{1}{3}\right)^2$$

$$\text{c) } x^2 - 4x + 4 = (x-2)^2$$

$$(4) \quad \text{a) } x^2 + 4x + 4 = (x+2)^2$$

$$\text{b) } x^2 + x + \frac{1}{4} = \left(x + \frac{1}{2}\right)^2$$

$$\text{c) } x^2 + \frac{1}{2}x + \frac{1}{16} = \left(x + \frac{1}{4}\right)^2$$