

式の計算 (式の値)

1 解答 (1) 10000 (2) 1600 (3) 5000

$$(1) a^2 + 2ab + b^2 = (a+b)^2 \\ = (58+42)^2 \\ = 100^2 \\ = 10000$$

$$(2) a^2 - b^2 = (a+b)(a-b) \\ = (58+42) \times (58-42) \\ = 100 \times 16 \\ = 1600$$

$$(3) a^2 + ab - 8a - 8b = a(a+b) - 8(a+b) \\ = (a-8)(a+b) \\ = (58-8) \times (58+42) \\ = 50 \times 100 \\ = 5000$$

2 解答 (1) 100 (2) 308 (3) -1100

$$(1) x^2 - 2xy + y^2 = (x-y)^2 \\ = (20.4 - 10.4)^2 \\ = 10^2 \\ = 100$$

$$(2) x^2 - y^2 = (x+y)(x-y) \\ = (20.4 + 10.4) \times (20.4 - 10.4) \\ = 30.8 \times 10 \\ = 308$$

$$(3) 10y^2 - 10xy - 6x + 6y = 10y(y-x) - 6(x-y) \\ = 10y(y-x) + 6(y-x) \\ = (10y+6)(y-x) \\ = (10 \times 10.4 + 6) \times (10.4 - 20.4) \\ = 110 \times (-10) \\ = -1100$$

3 解答 (1) -9 (2) $\frac{41}{2}$ (3) $-\frac{231}{16}$

$$(1) a^2b + ab^2 = ab(a+b) \\ = -\frac{9}{4} \times 4 = -9$$

$$(2) a^2 + b^2 = (a+b)^2 - 2ab \\ = 4^2 - 2 \times \left(-\frac{9}{4}\right) = 16 + \frac{9}{2} = \frac{41}{2}$$

$$(3) (a^2-1)(b^2-1) = a^2b^2 - a^2 - b^2 + 1 \\ = (ab)^2 - (a^2 + b^2) + 1 \\ = \left(-\frac{9}{4}\right)^2 - \frac{41}{2} + 1 \\ = \frac{81}{16} - \frac{41}{2} + 1 = -\frac{231}{16}$$

4 解答 (1) $-\frac{64}{9}$ (2) $\frac{91}{9}$

$$(1) x^3y + 2x^2y^2 + xy^3 = xy(x^2 + 2xy + y^2) \\ = xy(x+y)^2 \\ = (-1) \times \left(-\frac{8}{3}\right)^2 \\ = -\frac{64}{9}$$

$$(2) x^2 + y^2 - xy = [(x+y)^2 - 2xy] - xy \\ = (x+y)^2 - 3xy \\ = \left(-\frac{8}{3}\right)^2 - 3 \times (-1) \\ = \frac{64}{9} + 3 \\ = \frac{91}{9}$$