

$$1. (1) 5 - 3 \times (-2) = 5 - (-6) = 5 + 6 = 11$$

$$(2) 36 \div (-9) + (-2)^2 = (-4) + 4 = 0$$

$$(3) \frac{5}{2} - \left(-\frac{3}{2}\right) \div \frac{3}{4} = \frac{5}{2} - \left(-\frac{3}{2}\right) \times \frac{4}{3} = \frac{5}{2} - (-2) = \frac{5}{2} + 2 = \frac{9}{2}$$

$$(4) 5 - 4 \times (1 - 3) \div 2 = 5 - 4 \times (-2) \times \frac{1}{2} = 5 - (-8) \times \frac{1}{2} = 5 - (-4) = 5 + 4 = 9$$

$$2. (1) 4xy \div \frac{2}{3}x = 4xy \times \frac{3}{2x} = 6y$$

$$(2) (2x + 5) - (-3x - 2) = 2x + 5 + 3x + 2 = 5x + 7$$

$$(3) 2(2x - y) - 3(x + y) = 4x - 2y - 3x - 3y = x - 5y$$

$$(4) \frac{2x + y}{3} - \frac{x - y}{5} = \frac{5(2x + y) - 3(x - y)}{15} = \frac{10x + 5y - 3x + 3y}{15} = \frac{7x + 8y}{15}$$

$$(5) (2a)^3 \times 3a \div 4a^2 = \frac{8a^3 \times 3a}{4a^2} = 6a^2$$

$$(6) 12ab^2 \div \frac{4}{15}ab \times \frac{5}{9}a = 12ab^2 \times \frac{15}{4ab} \times \frac{5a}{9} = 25ab$$

$$(7) (8a^2 - 10ab) \div 2a = 4a - 5b$$

$$(8) (2x - 3)^2 = 4x^2 - 12x + 9$$

$$(9) (x + 5y)(x - 5y) = x^2 - 25y^2$$

$$(10) (x + 1)(x + 4) - (x - 3)(x - 2) = x^2 + 5x + 4 - (x^2 - 5x + 6) = 10x - 2$$

$$3. (1) -x^2 + 16y^2 = (4y + x)(4y - x) \quad \text{または,} = -(x^2 - 16y^2)$$

$$(2) -6x + x^2 + 9 = x^2 - 6x + 9 = (x - 3)^2 = -(x + 4)(x - 4y)$$

$$(3) -3x^2y - 3xy + 6y = -3y(x^2 + x - 2) = -3y(x - 1)(x + 2)$$

$$4. (1) \sqrt{168} \div \sqrt{14} \div (-\sqrt{6}) = -\sqrt{\frac{168}{14 \times 6}} = -\sqrt{2}$$

$$(2) \sqrt{50} + 2\sqrt{3} - \sqrt{27} - \sqrt{18} = 5\sqrt{2} + 2\sqrt{3} - 3\sqrt{3} - 3\sqrt{2} = 2\sqrt{2} - \sqrt{3}$$

$$(3) \sqrt{20} - \frac{15}{\sqrt{5}} = 2\sqrt{5} - \frac{15\sqrt{5}}{5} = 2\sqrt{5} - 3\sqrt{5} = -\sqrt{5}$$

$$5. (1) \frac{2}{3}x - 1 = \frac{1}{6}x + 2$$

両辺を6倍する

$$4x - 6 = x + 12$$

$$3x = 18$$

$$x = 6$$

$$(2) -0.2x + 1 = 0.4x - 2.6$$

両辺を10倍する

$$-2x + 10 = 4x - 26$$

$$-6x = -36$$

$$x = 6$$

$$(3) \begin{cases} x + 2y = -7 \dots\dots\dots ① \\ \frac{x}{5} - \frac{y}{2} = 4 \dots\dots\dots ② \end{cases}$$

$$② \times 10 - ① \times ②$$

$$2x - 5y = 40$$

$$-) \quad 2x + 4y = -14$$

$$\hline -9y = 54$$

$$y = -6$$

$y = -6$ を①に代入

$$x + 2 \times (-6) = -7$$

$$x = 12 - 7 = 5$$

$$(x, y) = (5, -6)$$

$$(4) x^2 = 5x + 24$$

$$x^2 - 5x - 24 = 0$$

$$(x + 3)(x - 8) = 0$$

$$x = -3, 8$$

以上