

受験番号 _____

氏名 _____

問 1

$$1) \quad x^2 + x - 12 = 0$$

$$(x - 3)(x + 4) = 0$$

$$\therefore x = 3, -4$$

$$2) \quad 2x^2 + x = 6$$

$$2x^2 + x - 6 = 0$$

$$(x + 2)(2x - 3) = 0$$

$$\therefore x = \frac{3}{2}, -2$$

$$3) \quad 2x + 3 > x - 1$$

$$2x - x > 1 - 3$$

$$x > -4$$

$$4) \quad 2x - 1 < 3x + 1 \leq x + 3$$

$$2x - 1 < 3x + 1 \cdots \textcircled{1}$$

$$3x + 1 \leq x + 3 \cdots \textcircled{2}$$

①より

$$2x - 3x < 1 + 1$$

$$-x < 2$$

②より

$$3x - x \leq 3 - 1$$

$$2x \leq 2$$

$$\therefore -2 < x \leq 1$$

$$5) \quad \begin{cases} 2x + y = 7 \\ x - 2y = -4 \end{cases} \quad \begin{array}{l} 2x + y = 7 \cdots \textcircled{1} \\ x - 2y = -4 \cdots \textcircled{2} \end{array}$$

①×2+②

$$\begin{array}{r} 4x + 2y = 14 \\) \quad x - 2y = -4 \\ \hline 5x = 10 \end{array}$$

 $x = 2$ を①に代入

$$4 + y = 7$$

$$y = 3$$

$$6) \quad x^2 + x - 6 < 0$$

$$(x - 2)(x + 3) < 0$$

$$-3 < x < 2$$

問 2

$$1) \quad y = ax^2 + bx + c \text{とおく}$$

$$-8 = a - b + c \cdots \textcircled{1}$$

$$4 = a + b + c \cdots \textcircled{2}$$

$$-5 = c \cdots \textcircled{3}$$

$$\textcircled{1}' + \textcircled{2}'$$

$$2a = 6$$

$$a = 3$$

③を①, ②に代入

$$-8 = a - b - 5$$

$$a - b = -3 \cdots \textcircled{1}'$$

$$4 = a + b - 5$$

$$a + b = 9 \cdots \textcircled{2}'$$

①'に代入

$$b = 6$$

$$\therefore y = 3x^2 + 6x - 5$$

裏面に解答して下さい

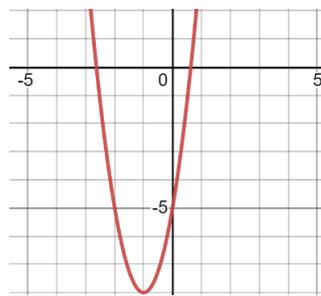
問 2

$$2) \quad y = 3x^2 + 6x - 5$$

$$y = 3(x + 1)^2 - 8$$

最小値 $x = -1$ のとき -8

最大値 $x = 2$ のとき 19



$$3) \quad y = 3x^2 + 6x - 5 \quad \dots \textcircled{1}$$

$$y = 4x + 3 \quad \dots \textcircled{2}$$

$$3x^2 + 6x - 5 = 4x + 3$$

$$3x^2 + 2x - 8 = 0$$

$$(x + 2)(3x - 4) = 0$$

$$\therefore x = -2, \frac{4}{3}$$

②に代入

$$y = -8 + 3 = -5$$

$$y = 4 \times \frac{4}{3} + 3 = \frac{16+9}{3} = \frac{25}{3}$$

$$\therefore (x, y) = (-2, -5), \left(\frac{4}{3}, \frac{25}{3}\right)$$

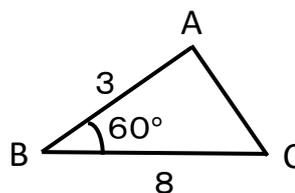
問 3

$$1) \quad s = \frac{1}{2} \times 3 \times 8 \times \sin 60^\circ$$

$$= \frac{1}{2} \times 3 \times 8 \times \frac{\sqrt{3}}{2}$$

$$= 6\sqrt{3}$$

A. $6\sqrt{3} \text{ cm}^2$



$$2) \quad AC^2 = AB^2 + BC^2 - 2AB \cdot BC \cdot \cos 60^\circ$$

$$= 9 + 64 - 2 \times 3 \times 8 \times \frac{1}{2}$$

$$= 9 + 64 - 24 = 49$$

$$AC = 7 \quad AC > 0 \text{ より}$$

A. 7 cm

$$3) \quad \frac{AC}{\sin 60^\circ} = \frac{7}{\frac{\sqrt{3}}{2}} = 2R$$

$$R = \frac{7}{\sqrt{3}} = \frac{7\sqrt{3}}{3}$$

A. $\frac{7\sqrt{3}}{3}$

問 4

逆 $m + 2$ が自然数ならば m は自然数である
偽 $m = -1$

裏 m が自然数でないならば $m + 2$ は自然数でない
偽 $m = -1$

対偶 $m + 2$ が自然数でないならば m は自然数でない
真