

H 2 5 産技①

$$\begin{aligned} \text{① (1)} & -\frac{2}{3} - \left(-\frac{1}{5} - \frac{5}{6}\right) \\ & = -\frac{2}{3} + \frac{1}{5} + \frac{5}{6} \\ & = \frac{11}{30} \end{aligned}$$

$$\begin{aligned} \text{(2)} & (\sqrt{7} + \sqrt{3})^2 - 2\sqrt{3}(\sqrt{7} + \sqrt{3}) \\ & = 7 + 2\sqrt{21} + 3 - 2\sqrt{21} - 6 \\ & = 4 \end{aligned}$$

$$\begin{aligned} \text{(3)} & (-2a)^2 \div \frac{4}{3}a^2b^3 \times 3b^3 \\ & = \frac{4a^2}{1} \times \frac{3}{4a^2b^3} \times \frac{3b^3}{1} \\ & = 9 \end{aligned}$$

$$\begin{aligned} \text{(4)} & \frac{5a - 7b}{3} - \frac{a + 2b}{2} \\ & = \frac{2(5a - 7b) - 3(a + 2b)}{6} \\ & = \frac{10a - 14b - 3a - 6b}{6} \\ & = \frac{7a - 20b}{6} \end{aligned}$$

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$$\text{II (5)} \begin{cases} 4x + 3y - 10 = 0 \\ 5x - 6y + 7 = 0 \\ 8x + 6y - 20 = 0 \\ 5x - 6y + 7 = 0 \end{cases}$$

$$13x - 13 = 0$$

$$\therefore x = 1$$

$$4 \times 1 + 3y - 10 = 0$$

$$\therefore y = 2$$

$$\therefore \underline{x = 1, y = 2} \quad \#$$

$$(6) \quad x^2 + 3x - 2 = 0$$

$$x = \frac{-3 \pm \sqrt{3^2 - 4 \times 1 \times (-2)}}{2 \times 1}$$

$$= \frac{-3 \pm \sqrt{17}}{2}$$

$$\underline{\hspace{1.5cm}} \quad \#$$

$$(7) \quad \text{ア} \quad 2\sqrt{a} + 3\sqrt{a} = 5\sqrt{a} \dots \times$$

$$\text{イ} \quad 2\sqrt{a} \times 3\sqrt{b} = 6\sqrt{ab} \dots \circ$$

$$\text{ウ} \quad (\sqrt{a} + \sqrt{b})^2 = a + 2\sqrt{ab} + b \dots \times$$

$$\text{エ} \quad \frac{4a + b}{2} = 2a + \frac{1}{2}b \dots \times$$

$$\text{オ} \quad \frac{b}{a} \times \sqrt{\frac{a}{b}} = \sqrt{\frac{b}{a}} \dots \circ$$

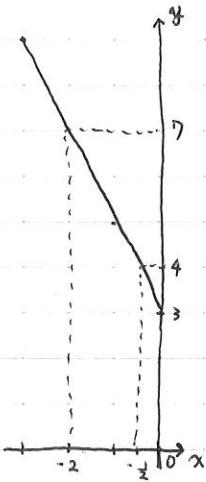
$$\text{カ} \quad \sqrt{a^2 + 4b^2} = \sqrt{(a + 2b)^2 - 4ab} \dots \times$$

$$\therefore \underline{\text{イ, オ}} \quad \#$$

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$$\boxed{2}(1) \quad \frac{600}{1000} \div 40 \times 60^2 = \underline{54 \text{ 秒}}$$

(2)



$$y = -2x + 3$$

$$y = -2 \times (-2) + 3$$

$$= 7$$

$$y = -2 \times (-\frac{1}{2}) + 3$$

$$= 4$$

$$\therefore \underline{4 \leq y \leq 7}$$

(3)

$$\frac{-\frac{2}{2} - (-\frac{2}{1})}{2 - 1}$$

$$= \frac{-1 + 2}{1}$$

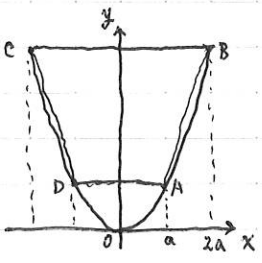
$$= \underline{1}$$

$$(4) \quad (5 \overset{20}{\times} 4 + 15 \overset{240}{\times} 16 + 25 \overset{500}{\times} 20) \div 40$$

$$= \underline{19 \text{ 分}}$$

H25 産技④

3 (1)



A(1, 1)

B(2, 4)

傾き 3

D(-1, 1)

∴ $y = 3x + 4$ //

$y = x^2$

(2) A(2, 4)

B(4, 16)

C(-4, 16)

D(-2, 4)

$\{4 - (-4) + 2 - (-2)\} \times (16 - 4) \div 2 = \underline{72 \text{ cm}^2}$ //

(3) $\angle ABC = 45^\circ$ のとき AB の傾き 1

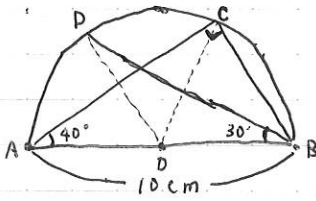
$\frac{(2a)^2 - a^2}{2a - a} = 1$

$\frac{3a^2}{a} = 1$

∴ $a = \frac{1}{3}$ //

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4 (1)



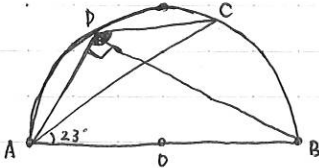
$$\angle A C B = 90^\circ$$

$$\angle C B D = 180^\circ - (90^\circ + 40^\circ + 30^\circ) = 20^\circ$$

$$\angle C O D = 20^\circ \times 2 = 40^\circ$$

$$\begin{aligned} \widehat{CD} &= 10\pi \times \frac{40^\circ}{360^\circ} \\ &= \frac{10}{9}\pi \text{ cm} \end{aligned}$$

(2)

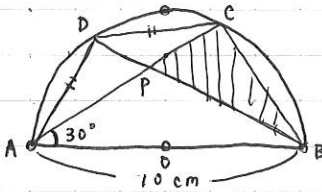


$$\angle A D B = 90^\circ$$

$$\angle B D C = \angle B A C = 23^\circ$$

$$\begin{aligned} \angle C D A &= 90^\circ + 23^\circ \\ &= 113^\circ \end{aligned}$$

(3)



$$\begin{aligned} \angle C D A &= 90^\circ + 30^\circ \\ &= 120^\circ \end{aligned}$$

$$\begin{aligned} \angle D C A &= \angle D A C \\ &= (180^\circ - 120^\circ) \div 2 \\ &= 30^\circ \end{aligned}$$

$$\therefore CD \parallel AB (\because \angle D C A = \angle C A B)$$

$$\begin{aligned} \angle D O A &= \angle D C A \times 2 \\ &= 60^\circ \end{aligned}$$

$$\therefore DO = AO = AD = 10 \div 2 = 5$$

$$CD : AB = 1 : 2 \text{ であるから}$$

$$\triangle B C P : \triangle A B C D = 2 : 9$$

$$\triangle A B C D \text{ の高さは}$$

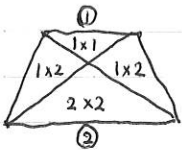
$$5 \div 2 \times \sqrt{3} = \frac{5}{2}\sqrt{3}$$

$$\triangle A D C D = (5 + 10) \times \frac{5}{2}\sqrt{3} \div 2$$

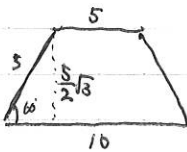
$$= \frac{75}{4}\sqrt{3}$$

$$\triangle B C P = \frac{75}{4}\sqrt{3} \div 9 \times 2$$

$$= \frac{25}{6}\sqrt{3} \text{ cm}^2$$



②

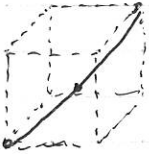


$$\left(\begin{aligned} \angle B C P &= 90^\circ \\ B C &= 5 \\ C P &= 5\sqrt{3} \times \frac{1}{3} \\ \text{と } \angle \text{ 等 } \end{aligned} \right)$$

H 2 5 產技 ⑥

$$\text{⑤ (1)} \quad 4\pi \times 2^2 = \underline{16\pi \text{ cm}^2}$$

(2)



$$\sqrt{4^2 + 4^2 + 4^2} = 2r$$

$$4\sqrt{3} = 2r$$

$$\therefore r = \underline{2\sqrt{3} \text{ cm}}$$

$$\text{(3)} \quad \sqrt{3} a = 6 \times 2$$

$$\therefore a = 4\sqrt{3}$$

$$(4\sqrt{3})^3 = \underline{192\sqrt{3} \text{ cm}^3}$$