

## H 2 4 産 技 ①

$$\begin{aligned}
 \text{① (1)} \quad & \left(\frac{7}{3} - \frac{3}{2}\right) + \frac{3}{2} \times \left(-\frac{2}{9}\right) \\
 &= \frac{14}{6} - \frac{9}{6} - \frac{2}{6} \\
 &= \frac{3}{6} \\
 &= \frac{1}{2} \quad \text{〃}
 \end{aligned}$$

$$\begin{aligned}
 \text{(2)} \quad & (3 - \sqrt{2})^2 + (\sqrt{6} - \sqrt{3})^2 \\
 &= 9 - 6\sqrt{2} + 2 + 6 - 6\sqrt{2} + 3 \\
 &= 20 - 12\sqrt{2} \quad \text{〃}
 \end{aligned}$$

$$\begin{aligned}
 \text{(3)} \quad & (-6a^3b^2)^2 \div 18a^3b \div (-2a^2b^2) \\
 &= \frac{36a^6b^4}{18a^3b \times (-2a^2b^2)} \\
 &= -ab \quad \text{〃}
 \end{aligned}$$

$$\begin{aligned}
 \text{(4)} \quad & \frac{7a - 3b}{3} - \frac{4a - b}{2} \\
 &= \frac{2(7a - 3b)}{6} - \frac{3(4a - b)}{6} \\
 &= \frac{14a - 6b - 12a + 3b}{6} \\
 &= \frac{2a - 3b}{6} \quad \text{〃}
 \end{aligned}$$

## H 2 4 産技 ②

$$\textcircled{1} (5) \begin{cases} -7x + 8y = -3 \\ 4x - 5y = 0 \\ -28x + 32y = -12 \\ \underline{28x - 35y = 0} \\ -3y = -12 \end{cases}$$

$$\therefore y = 4$$

$$4x - 5 \times 4 = 0$$

$$\therefore x = 5$$

$$\therefore \underline{x = 5, y = 4} \quad \#$$

$$\begin{aligned} (6) \quad & x^2 - 6x + 10 \\ &= x^2 - 6x + \left(\frac{6}{2}\right)^2 - \left(\frac{6}{2}\right)^2 + 10 \\ &= x^2 - 6x + 9 - 9 + 10 \\ &= (x - 3)^2 + 1 \\ &\therefore \underline{\textcircled{1} = 3, \textcircled{2} = 1} \quad \# \end{aligned}$$

$$\begin{aligned} (7) \quad & (x + 2)^2 - 9 \\ &= \{(x + 2) + 3\}\{(x + 2) - 3\} \\ &= \underline{(x + 5)(x - 1)} \quad \# \end{aligned}$$

## H 2 4 摩 技 ③

(1)  $(2 + 4)a = 3$

$$\therefore a = \frac{1}{2}$$

(2)  $x^2 - ab = 0$

$$\therefore x = \pm \sqrt{ab}$$

|       |   |   |   |   |   |   |
|-------|---|---|---|---|---|---|
| a \ b | 1 | 2 | 3 | 4 | 5 | 6 |
| 1     | 0 |   |   | 0 |   |   |
| 2     |   | 0 |   |   |   |   |
| 3     |   |   | 0 |   |   |   |
| 4     | 0 |   |   | 0 |   |   |
| 5     |   |   |   |   | 0 |   |
| 6     |   |   |   |   |   | 0 |

$$\frac{8}{36} = \frac{2}{9}$$

(3)  $4x \frac{x}{60} = 6x \frac{x - 15}{60}$

$$4x = 6x - 90$$

$$\therefore x = 45 \text{ 分}$$

(4) 
$$\begin{cases} x + y = 300 \\ \frac{8x}{100} + \frac{4y}{100} = \frac{300 \times 5}{100} \end{cases}$$

$$8x + 4y = 1500$$

$$8x + 4y = 1500$$

$$4y = 900$$

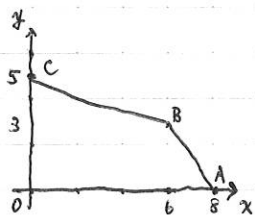
$$\therefore y = 225$$

$$x + 225 = 300$$

$$\therefore x = 75 \text{ 分}$$

## H24産技④

③(1)



$$A(8, 0)$$

$$B(6, 3)$$

$$\therefore y = -\frac{3}{2}x + 12$$

(2) AB の傾きは  $-\frac{3}{2}$

BC の傾きは  $-\frac{1}{3}$

$$-\frac{3}{2} < -\frac{1}{2} < -\frac{1}{3}$$

であるから点 B を通るときは最大となり、

$$3 = -\frac{1}{2} \times 6 + k$$

$$\therefore k = 6$$

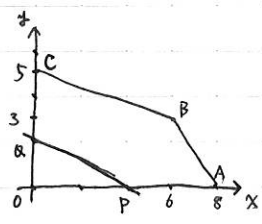
また、点 O を通るときは最小となり

$$0 = -\frac{1}{2} \times 0 + k$$

$$\therefore k = 0$$

$$\therefore 0 \leq k \leq 6$$

③(3)



$$OABC = 5 \times 6 \div 2 + 8 \times 3 \div 2 = 27$$

$$P(2k, 0)$$

$$Q(0, k)$$

$$\triangle OPQ = OABC \times \frac{1}{3}$$

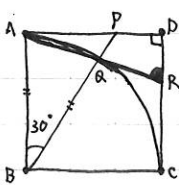
$$2k \times k \div 2 = 27 \times \frac{1}{3}$$

$$k^2 = 9$$

$$\therefore k = 3 \quad (\because k \geq 0)$$

## H24 産技⑤

4 (1)

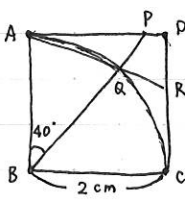


$$\angle B A Q = (180^\circ - 30^\circ) \div 2 = 75^\circ$$

$$\angle R A D = 90^\circ - 75^\circ = 15^\circ$$

$$\angle A R D = 180^\circ - (90^\circ + 15^\circ) = 75^\circ$$

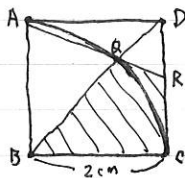
(2)



$$\angle P B C = 90^\circ - 40^\circ = 50^\circ$$

$$\begin{aligned} \widehat{Q C} &= 2 \times 2\pi \times \frac{50^\circ}{360^\circ} \\ &= \frac{5}{9} \pi \text{ cm} \end{aligned}$$

(3)



$$B Q = 2$$

$$B D = 2\sqrt{2}$$

$$\begin{aligned} B D : B Q &= 2\sqrt{2} : 2 \\ &= \sqrt{2} : 1 \end{aligned}$$

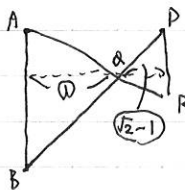
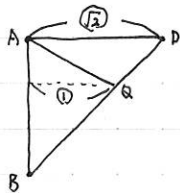
$$\begin{aligned} \Delta A B Q &= 2 \times \frac{2}{\sqrt{2}} \div 2 \\ &= \sqrt{2} \end{aligned}$$

$$\begin{aligned} \Delta A B Q : \Delta R D Q &= 1^2 : (\sqrt{2} - 1)^2 \\ &= 1 : 3 - 2\sqrt{2} \end{aligned}$$

$$\begin{aligned} \Delta R D Q &= \sqrt{2}(3 - 2\sqrt{2}) \\ &= 3\sqrt{2} - 4 \end{aligned}$$

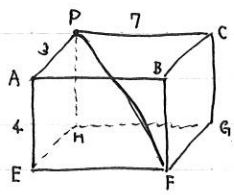
$$\begin{aligned} \Delta B C D &= 2 \times 2 \div 2 \\ &= 2 \end{aligned}$$

$$\begin{aligned} B C R Q &= 2 - (3\sqrt{2} - 4) \\ &= 2 - 3\sqrt{2} + 4 \\ &= (6 - 3\sqrt{2}) \text{ cm}^2 \end{aligned}$$



### H 2 4 産 技 ⑥

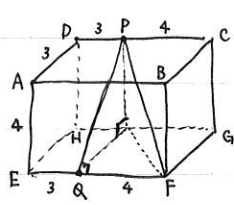
5 (1)



$$FP = \sqrt{3^2 + 7^2 + 4^2}$$

$$= \sqrt{74} \text{ cm}$$

(2)



$$2 \times 3 = 6$$

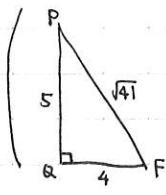
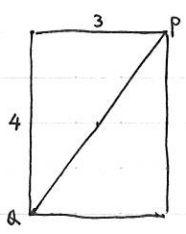
$$1 \times 3 = 3$$

$$PQ = \sqrt{3^2 + 4^2}$$

$$= 5$$

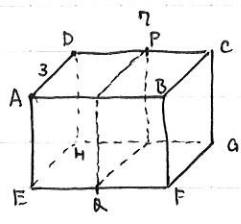
$$\Delta FPQ = 4 \times 5 \div 2$$

$$= 10 \text{ cm}^2$$



$FP = \sqrt{41}$  より  $\angle FQP = 90^\circ$  は  
 確かめられるが、図より明らかな  
 してよい。

(3)



$$EQ = CP$$

$$x = 7 + 3 - 2x$$

$$\therefore x = \frac{10}{3} \text{ 秒後}$$