

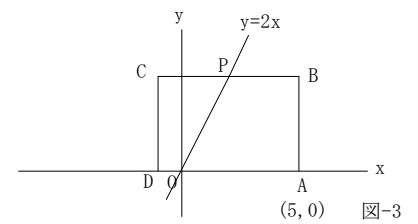
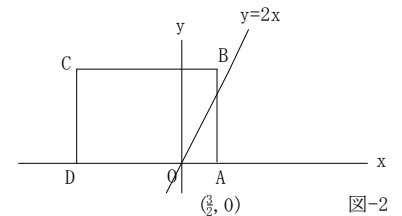
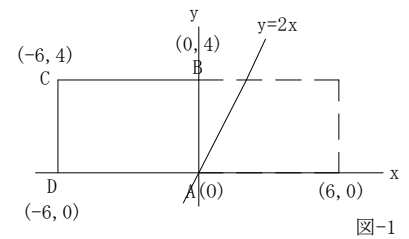
1. 問1 $2 \times \frac{3}{2} = 3$ $\frac{3}{2} \times 3 \times \frac{1}{2} = \frac{9}{4} \text{cm}^2$

問2 $4 = 2x$ $x = 2$ $(2, 4)$

台形OABPの面積 = $\frac{(5 - 2 + 5) \times 4}{2} = 16 \text{cm}^2$

問3 (ア) $S = t \times 2t \times \frac{1}{2} = t^2$ $(0 \leq t \leq 2)$

(イ) $S = \frac{(t - 2 + t) \times 4}{2} = 4t - 4$ $(2 \leq t \leq 6)$

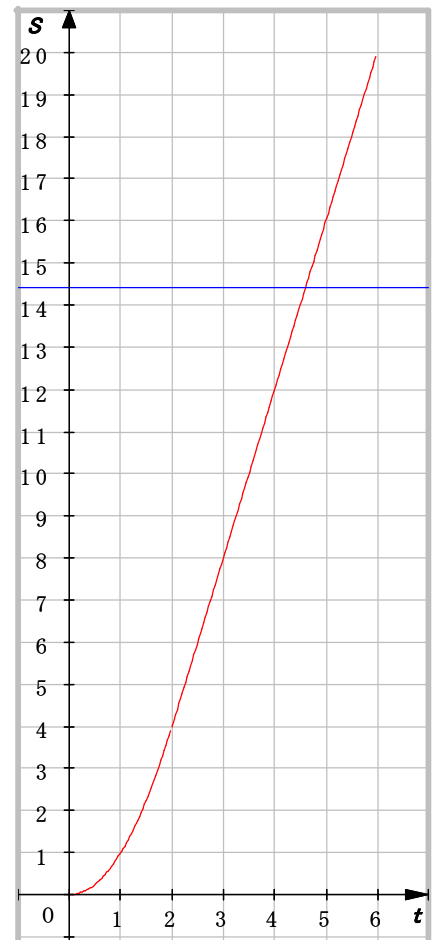


問4 右図の赤色の線

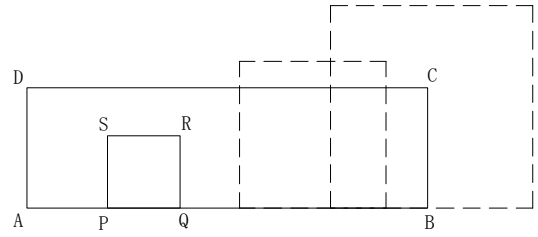
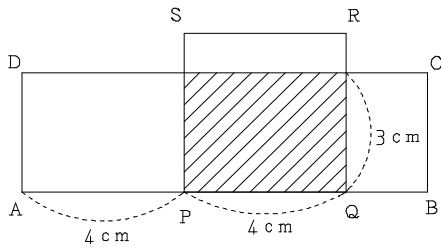
問5 長方形の面積の $\frac{3}{5} = 4 \times 6 \times \frac{3}{5} = \frac{72}{5} \text{cm}^2$

$4t - 4 = \frac{72}{5}$ $4t = 4 + \frac{72}{5}$

$t = 1 + \frac{18}{5} = \frac{23}{5} = 4.6$

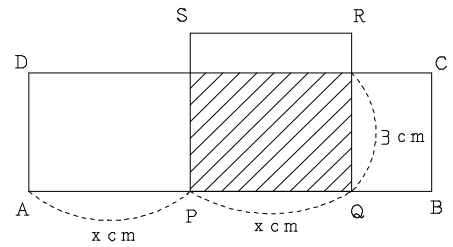
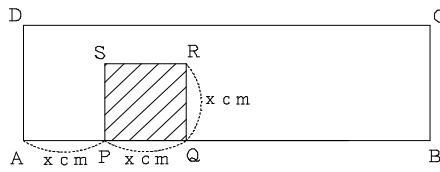


2. (1) $4 \times 3 = 12 \text{ cm}^2$



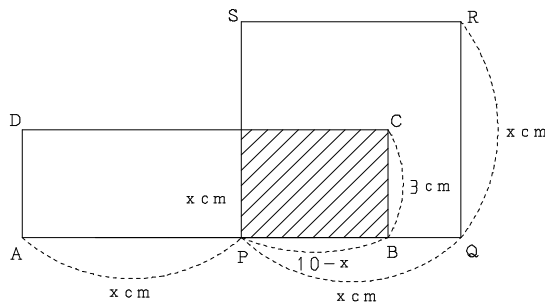
(2) (ア) $y = x^2$ ($0 \leq x \leq 3$)

(イ) $y = 3x$ ($3 \leq x \leq 5$)



(ウ) $y = (10 - x) \times 3$

$y = -3x + 30$ ($5 \leq x \leq 10$)



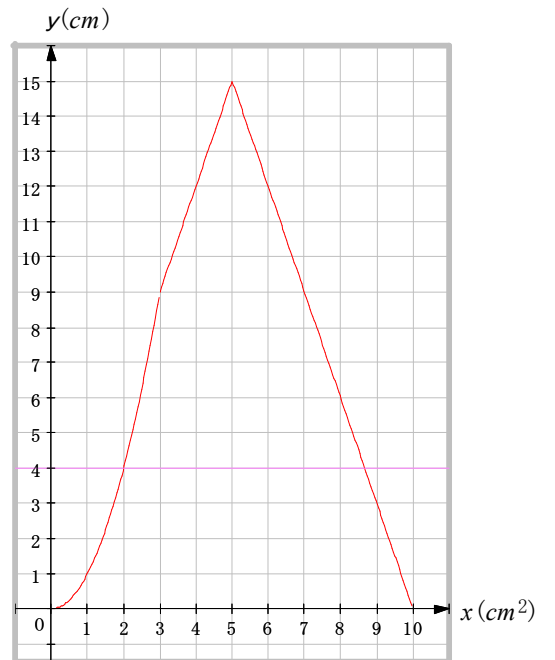
(3) 右図の赤色の線

(4) $x^2 = 4$ $-3x + 30 = 4$

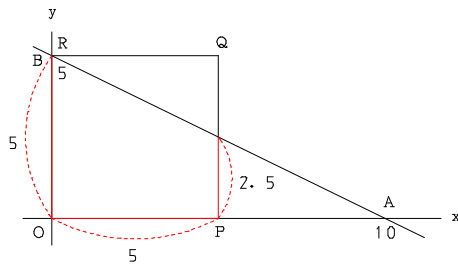
$x = 2$ $3x = 26$

$x = \frac{26}{3}$

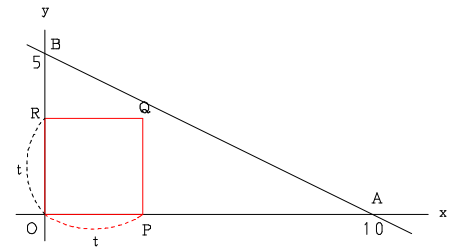
2秒後, 及び $\frac{26}{3}$ 秒後



3. (1) $L = 5 + 5 + 2.5 = 12.5\text{cm}$



(2) ア $L = 4t \quad \left(0 < t \leq \frac{10}{3}\right)$



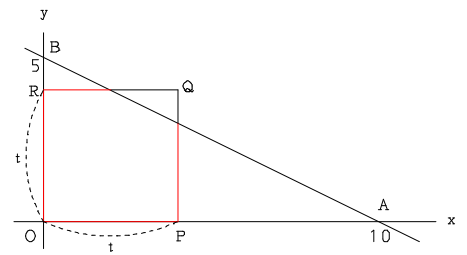
イ 直線ABの式 $y = -\frac{1}{2}x + 5$

$x = t$ のときの y の値 $-\frac{1}{2}t + 5$

$y = t$ のときの x の値

$t = -\frac{1}{2}x + 5$ より, $x = -2t + 10$

$L = t + t - \frac{1}{2}t + 5 - 2t + 10 = -\frac{1}{2}t + 15$

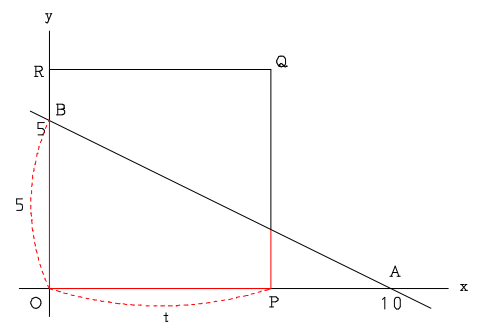


$\left(\frac{10}{3} \leq t \leq 5\right)$

ウ $x = t$ のときの y の値 $-\frac{1}{2}t + 5$

$L = 5 + t - \frac{1}{2}t + 5 = \frac{1}{2}t + 10$

$(5 \leq t \leq 10)$



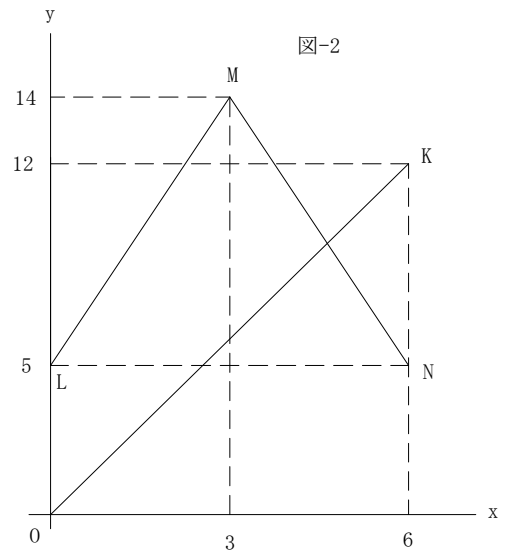
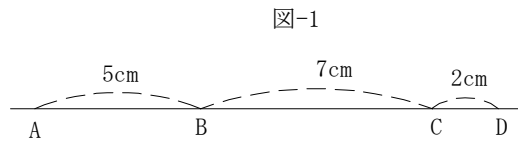
(3) ウ より

$2t = \frac{1}{2}t + 10$

$\frac{3}{2}t = 10$

$t = \frac{20}{3}$

4.



(1) 6秒で12cm動いているから

$$\frac{12}{6} = 2 \text{ (cm/秒)}$$

(2) ア 直線LM 傾き = $\frac{14-5}{3} = 3$ 切片 5

$$y = 3x + 5 \quad (0 \leq x \leq 3)$$

イ 直線MN 傾き = $\frac{-(14-5)}{3} = -3$

$$y = -3x + b \quad \text{これに点} N(6, 5) \text{を代入して}$$

$$-3 \times 6 + b = 5 \quad b = 24$$

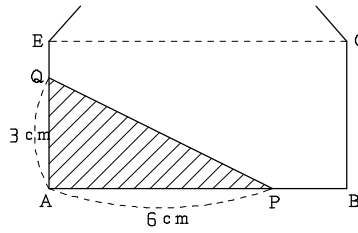
$$y = -3x + 24 \quad (3 \leq x \leq 6)$$

(3) $\begin{cases} \text{直線} OK & y = 2x \dots\dots\dots \text{①} \\ \text{直線} MN & y = -3x + 24 \dots\dots\dots \text{②} \end{cases}$ を解いて

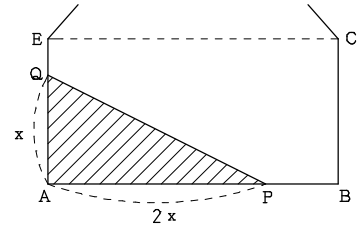
$$(x, y) = \left(\frac{24}{5}, \frac{48}{5} \right)$$

$$\frac{24}{5} = 4.8 \text{ 秒後} \quad A \text{から} \frac{48}{5} = 9.6 \text{ cm のところ}$$

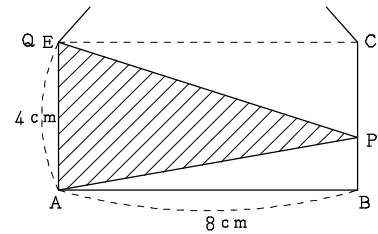
5. (1) $\frac{1}{2} \times 6 \times 3 = 9(\text{cm}^2)$



(2) ア $y = \frac{1}{2} \times 2x \times x = x^2 \quad (0 \leq x \leq 4)$



イ $y = \frac{1}{2} \times 4 \times 8 = 16 \quad (4 \leq x \leq 6)$

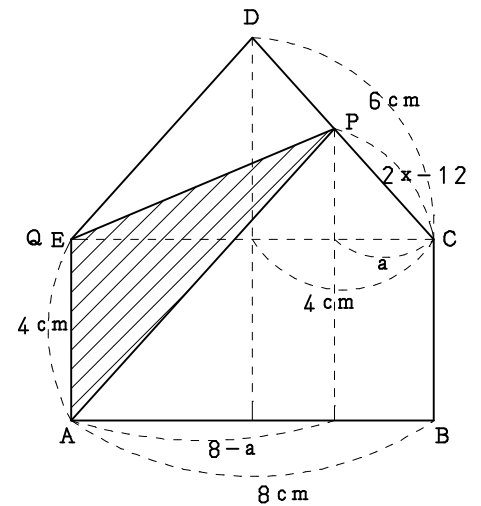


ウ $\frac{2x-12}{a} = \frac{6}{4} \quad a = \frac{4(x-6)}{3}$

$$y = \frac{1}{2} \times 4 \times (8-a) = 16 - 2a$$

$$= 16 - \frac{8(x-6)}{3}$$

$$y = -\frac{8}{3}x + 32 \quad (6 \leq x \leq 9)$$



(3) アより $x^2 = 12 \quad x = \sqrt{12} = 2\sqrt{3}$

ウより $-\frac{8}{3}x + 32 = 12 \quad x = \frac{15}{2} = 7.5 \quad 2\sqrt{3}, 7.5 \text{ 秒}$

6. (1) (5, -3)

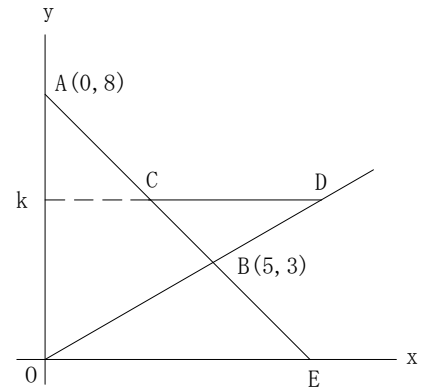
(2) 切片(y軸との交点)が8だから, 求める式を

$y = ax + 8$ とおき, 点B(5, 3)の座標を

代入すれば

$$5a + 8 = 3 \quad a = -1$$

$$y = -x + 8$$



(3) $k = 3 + 3$

$$k = 6$$

(4) 求める直線はOAの中点(0, 4)を通ればよい。

切片が4だから, 求める式を

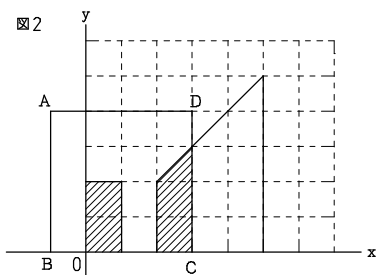
$y = ax + 4$ とおき, 点B(5, 3)の座標を代入すれば

$$5a + 4 = 3 \quad a = -\frac{1}{5}$$

$$y = -\frac{1}{5}x + 4$$

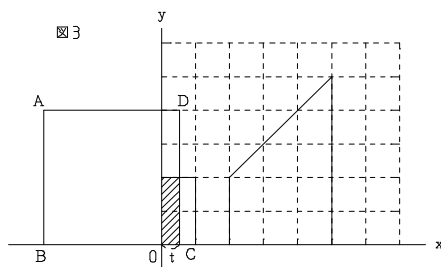
7. (1) 図2 から

$$S = 2 + 2.5 = 4.5 \text{ cm}^2$$



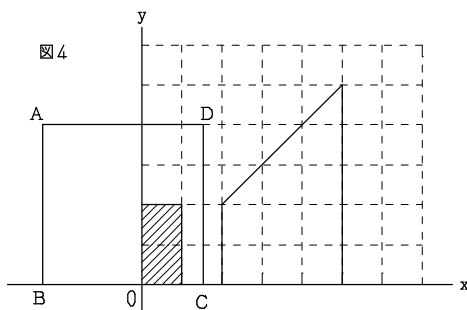
(2) ア 図3 から

$$S = t \times 2 = 2t \quad (0 \leq t \leq 1)$$



イ 図4 から

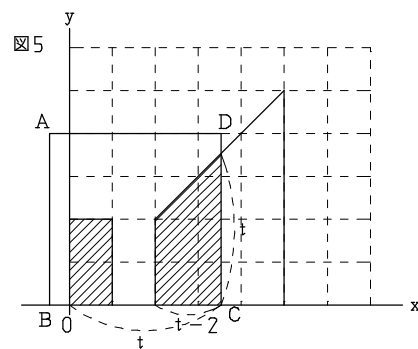
$$S = 2 \quad (1 \leq t \leq 2)$$



ウ 図5 から

$$S = 2 + \frac{(t+2)(t-2)}{2}$$

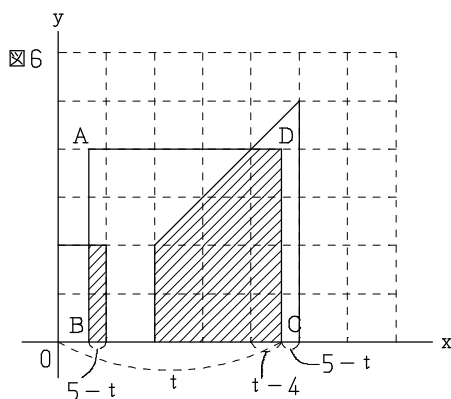
$$S = \frac{1}{2}t^2 \quad (2 \leq t \leq 4)$$



エ 図6 から

$$S = 2(5-t) + 6 + 4(t-4)$$

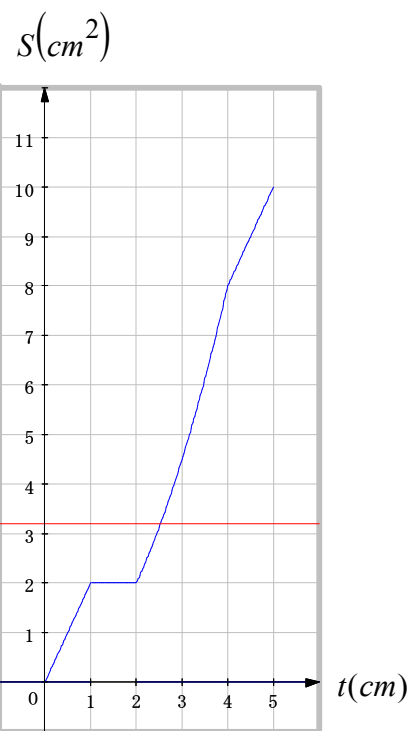
$$S = 2t \quad (4 \leq t \leq 5)$$



(3) 右図の青色の線

$$\text{正方形の面積の } \frac{1}{5} = 4 \times 4 \times \frac{1}{5} = \frac{16}{5}$$

$$\text{ウ から } \frac{1}{2}t^2 = \frac{16}{5}, \text{ よって } t = \frac{4\sqrt{10}}{5}$$



8. (1) $y = -\frac{1}{2}x + 1$

(2) $\mathcal{A} \quad S = \frac{1}{2} \times a \times \frac{1}{2}a = \frac{1}{4}a^2$

$T = 1 \times (2 - a) = 2 - a$

$\mathcal{I} \quad \frac{1}{4}a^2 = 2 - a$

$a^2 + 4a - 8 = 0$

$a = -2 + \sqrt{2^2 - 1 \times (-8)} = 2 + \sqrt{12}$

$= -2 + 2\sqrt{3}$

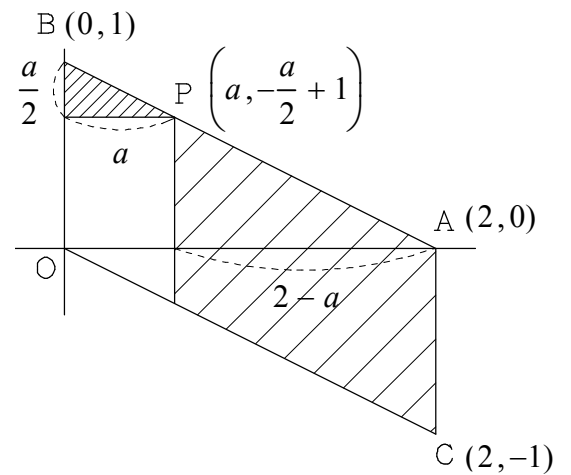
$= 2(-1 + \sqrt{3})$

$= 2(-1 + 1.732)$

$= 2 \times 0.732$

$= 1.464$

1.46



数	平方根
1	1.000
2	1.414
3	1.732
4	2.000
5	2.236

以上