R1

1

(1) $5+\frac{1}{2}\times(-8)$

$=5-4=1$

(2) $4(a-b)-(a-9b)$

$=4a-4b-a+9b$

$=3a+5b$

(3) $(\sqrt{7}-1)^2$

$(a+b)^2=a^2+2ab+b^2$

$=7-2\sqrt{7}+1$

$=8-2\sqrt{7}$

(4) $4x+6=5(x+3)$

$4x+6=5x+15$

$-9=x$

$x=-9$

(5) $\begin{cases} -x+2y=8 \\ 3x-y=6 \end{cases}$

$\begin{cases} -x+2y=8 \\ 6x-2y=12 \end{cases}$

$5x=20$

$x=4$

$-4+2y=8$

$2y=12$

$y=6$

(6) $x^2+x-9=0$

$x=\frac{-1\pm\sqrt{1-4\cdot(-9)}}{2}$

$=\frac{-1\pm\sqrt{1+36}}{2}$

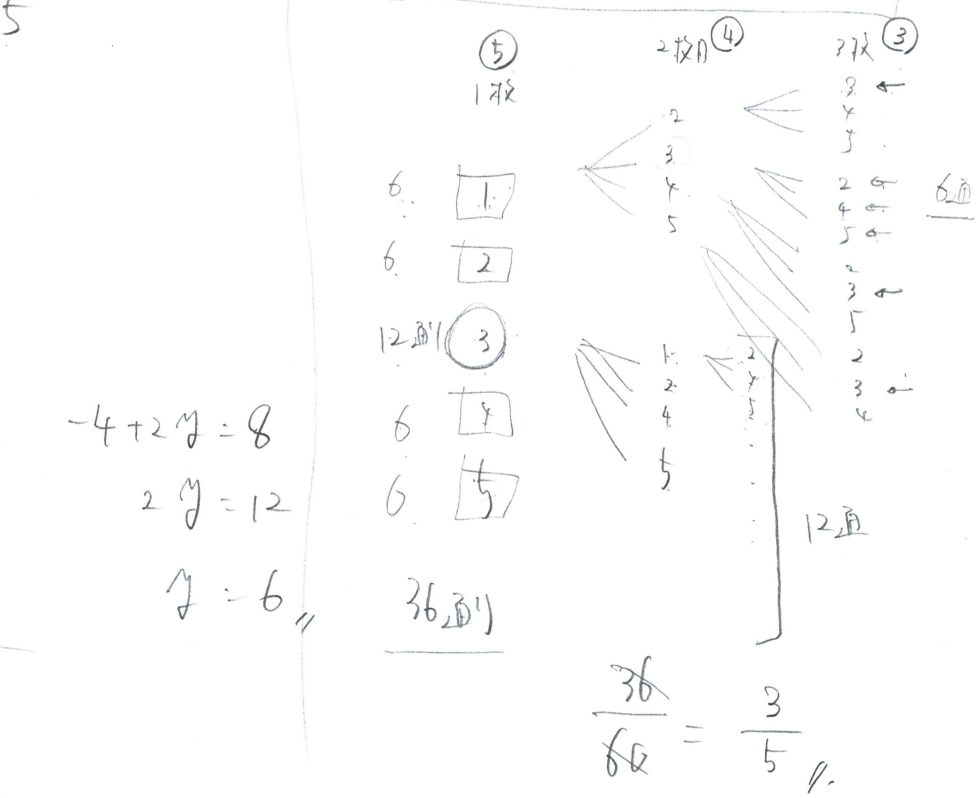
$=\frac{-1\pm\sqrt{37}}{2}$

(7) ボツ案

1.2.3 → 6

2.4.5 → 40

確率 = 問われるパターン → 36通り / 全てのパターン → 60通り



36通り

$\frac{36}{60}=\frac{3}{5}$

(7)

こっちを見て下さいね 笑 ←

(確) = $\dfrac{\text{問われてるパターン} \to 6}{\text{全てのパターン} \to 10}$

1, 2, 3 → 6

1, 2, 4 → 8

1, 2, 5 → 10

$\dfrac{6}{10} \to \dfrac{3}{5}$ //

1枚	2枚	3枚目
1	2 <	3 ←
		4
		5
	3 <	4 ←
		5 ←
	4 −	5
	5	×
2	3 <	4 ←
		5 ←
	4 −	5
	5	×
3	4 −	5 ←
	5	×

全て → $_5C_3 = \dfrac{5 \cdot 4 \cdot 3}{3 \cdot 2 \cdot 1} = 10$

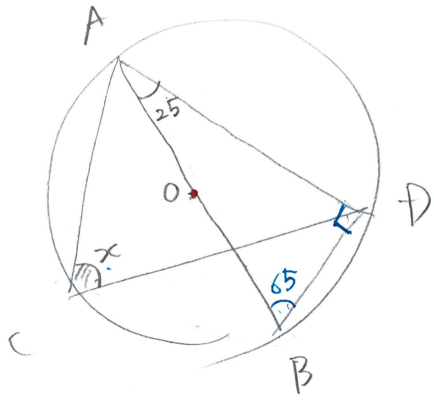
問 → $_4C_2 = \dfrac{4 \cdot 3}{2} = 6$

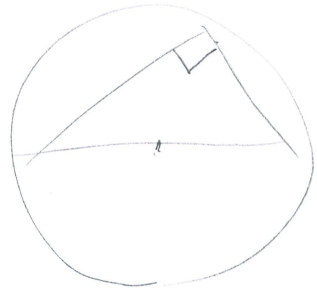
↓

(3.0.0)

1.2.4.5

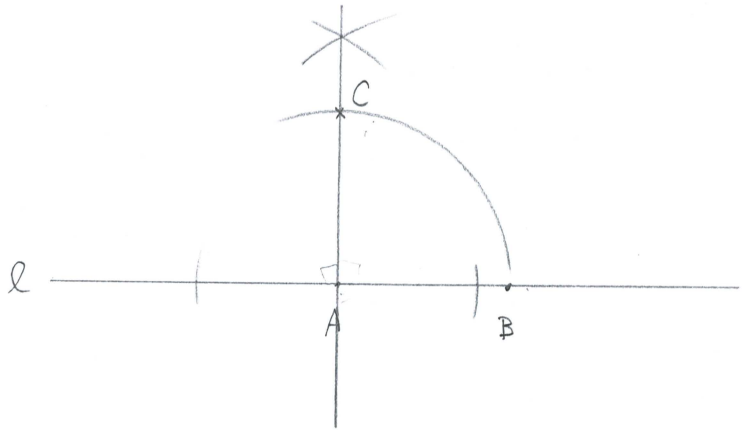
(8)





$x = 65°$

(9).



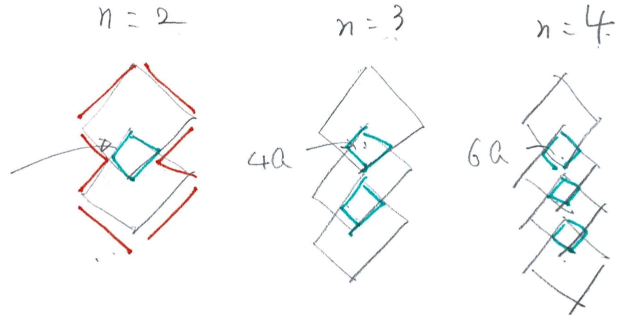
2

R1

(1)

8a

2a



6a   8a   10a

→ 8a

−

2a

6a

$(n \times 2 + 2)a$

$= (2n + 2)a$

$= 2a(n+1)$ (I)

n = 3

$4a \times 3 - 2a \times 2$

$= 12a - 4a = 8a$

n = 4

$4a \times 4 - 2a \times 3$

$= 16a - 6a = 10a$

$4a \times n - 2a \times (n-1)$

$= 4an - 2an + 2a$

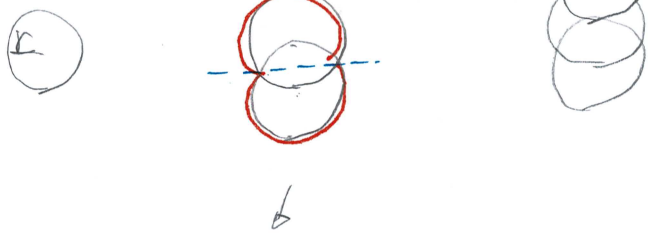
$= 2an + 2a$

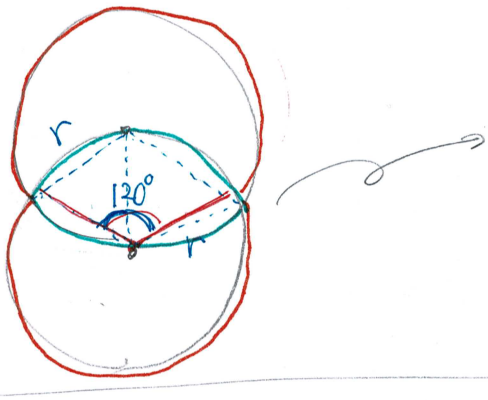
$= 2a(n+1)$

2

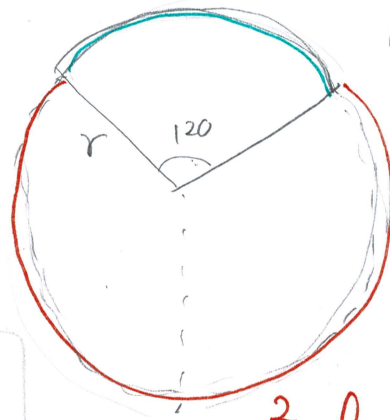
(2)

n=2





$\frac{1}{3}\ell$



$\frac{2}{3}\ell$

直径×2×$\frac{Q}{360}$

$\frac{120}{360}=\frac{1}{3}$

$n\times\ell-\frac{1}{3}\ell\times(2n-2)$

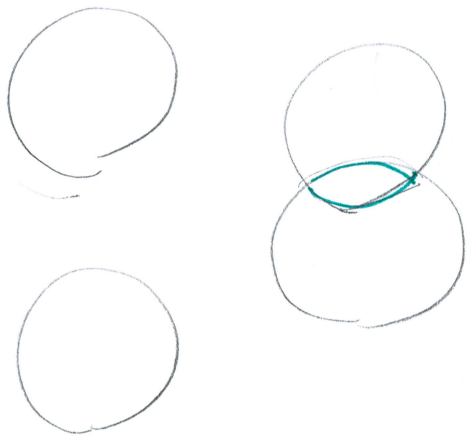
$=n\ell-\frac{2}{3}n\ell+\frac{2}{3}\ell$

$=\frac{1}{3}n\ell+\frac{2}{3}\ell=\frac{1}{3}\ell(n+2)$ //

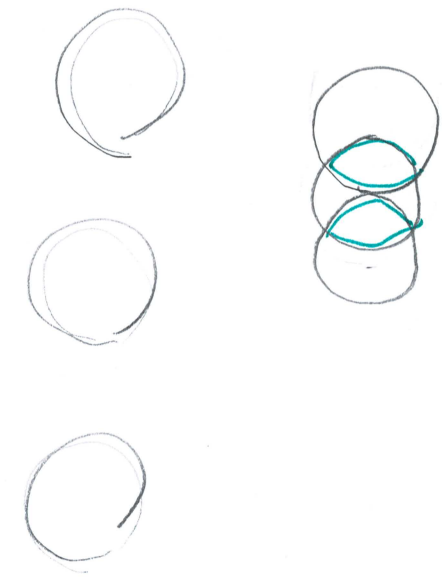
n = 2

n = 3

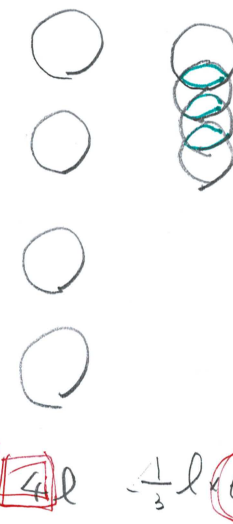
n = 4



2ℓ $-\frac{1}{3}\ell\times 2$



3ℓ $-\frac{1}{3}\ell\times 4$



4ℓ $-\frac{1}{3}\ell\times 6$

n個目の図形の周りの長さは

$M = n \times l - \frac{1}{3} l(2n-2)$ で表せるので

$= nl - \frac{2}{3}nl + \frac{2}{3}l$

$= \frac{1}{3}nl + \frac{2}{3}l$

$= \frac{1}{3}l(n+2)$ //

n=2の時

$M = 2l - \frac{1}{3}l \times 2$

n=3の時

$M = 3l - \frac{1}{3}l \times 4$ より

n個目の……

H31
R1

3

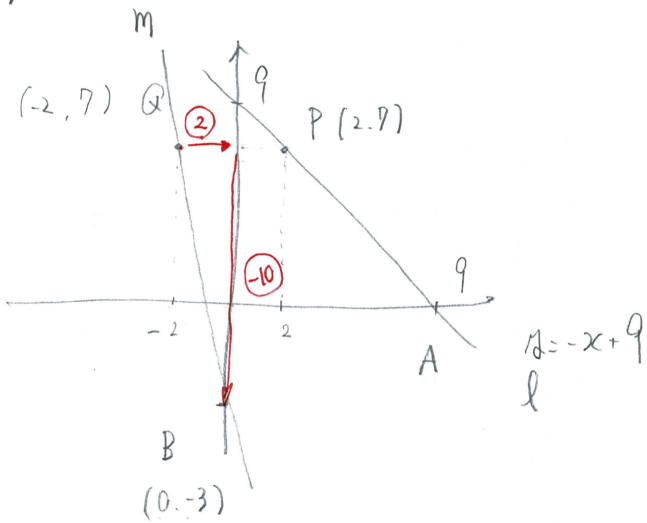
(1) $y=-x+9$ $P(-4, ?)$

$=-(-4)+9$

$=4+9$

$=13$

(2)



B (0, -3) Q (-2, 7) $y=ax+b$

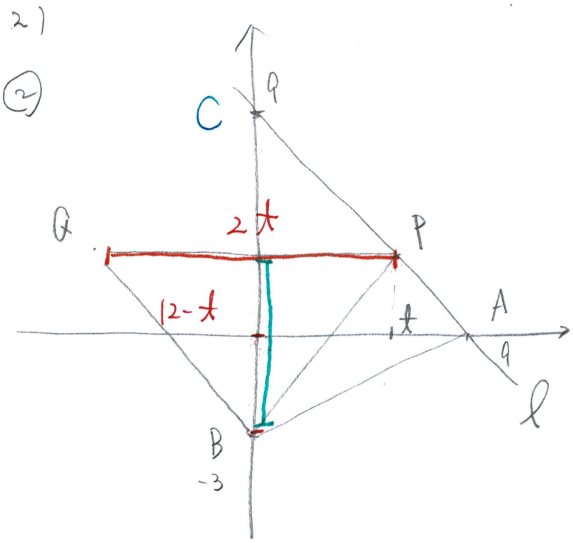
a: 傾き　b: 切片

$y=-5x-3$ (イ)

傾き $=\dfrac{yの進んだ分}{xの進んだ分}=\dfrac{-10}{2}=-5$

(2)

②



$\triangle BPQ = \triangle BAP \times 2$

点Pのx座標を求めよ

↓

★点Pのx…をtとする

$\triangle BPQ$ と $\triangle BAP$ を求める.

$3+(-t+9)$

$=12-t$

$\triangle BPQ = 2t \times (12-t) \times \frac{1}{2}$

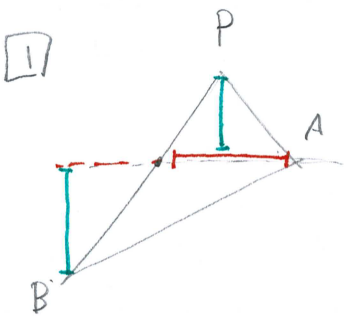
点Pは l 上にある

$y=-x+9$

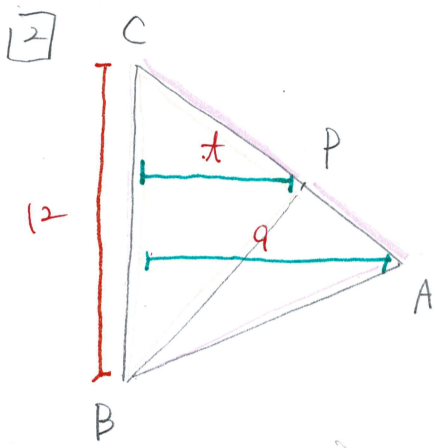
$=-t+9$

$P(t, -t+9)$

①



②



$\triangle BAP = \triangle ABC - \triangle BCP$

$= \frac{12}{1} \times 9 \times \frac{1}{2} - \frac{12}{1} \times t \times \frac{1}{2}$

$= 54 - 6t$

$\triangle BPQ = \triangle BAP \times 2$

$\frac{1}{2} \times t \times (12-t) \times \frac{1}{2} = (54-6t) \times 2$

$12t - t^2 = 108 - 12t$

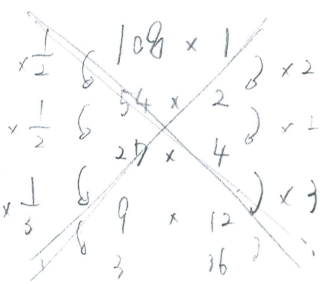
$t^2 - 24t + 108 = 0$

$(t-27)(t+4) = 0$

$t = 27, -4$

$(t-18)(t-6) = 0$

$t = 18, 6$



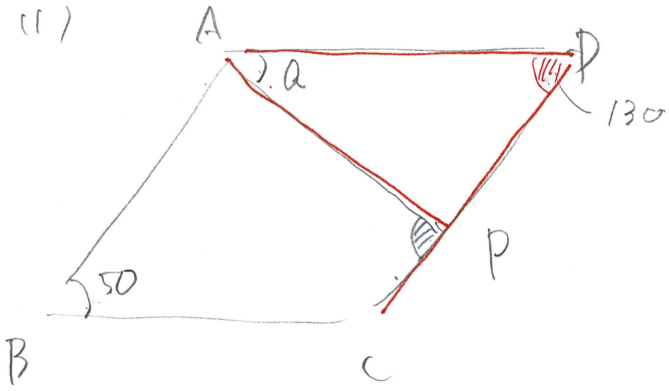
2 | 108
2 | 54
3 | 27
3 | 9
3

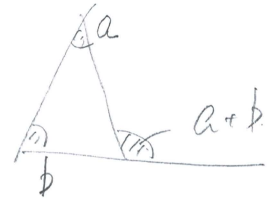
$2^2 \times 3^3$

18×6

④

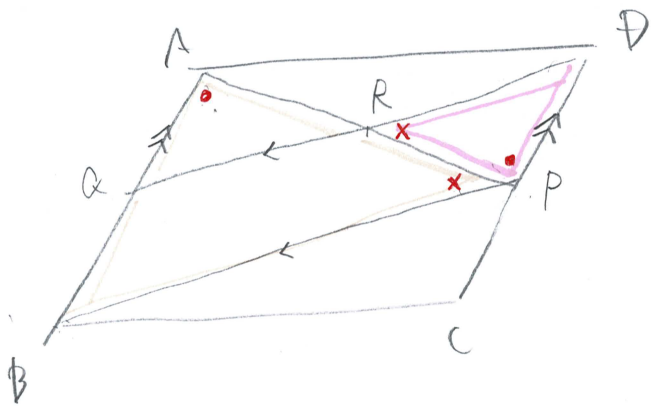
(1)





$\angle APC = a + 130 \cdots (P)$

(2)



△ABP ∽ △PDR

△ABPと△PDRにおいて

平行四辺形ABCDより AB // CDなので

$\angle BAP = \angle DPR$ (錯角) …①

仮定より QD // BPなので

$\angle APB = \angle PRD$ (錯角) …②

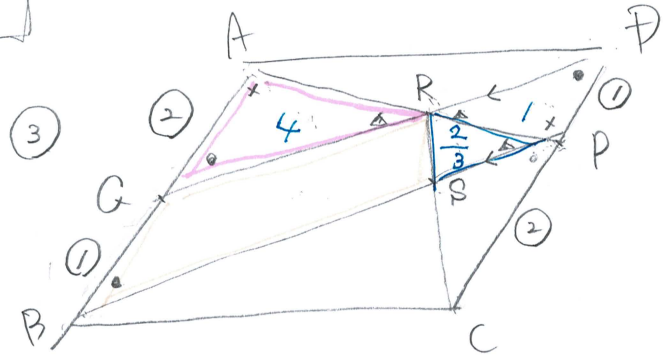
①②より

2組の角がそれぞれ等しいので

△ABP ∽ △PDR

(2)

②



□QBSR = △AQR × 13/12

13/3 ÷ 4

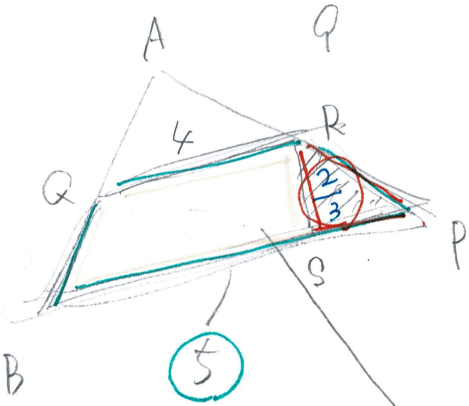
△ABP ∽ △PDR

相 3 : 1

面 9 : 1

= 13/3 × 1/4

= 13/12

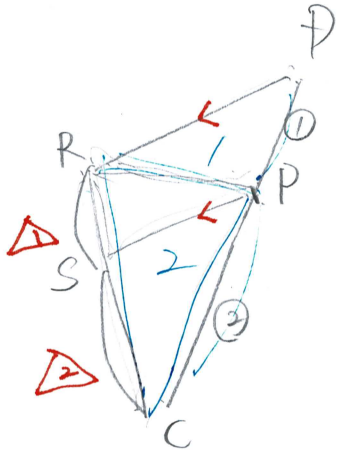


△ARQ ∽ △PRD

相 2 : 1

面 4 : 1

5 − 2/3 = 13/3

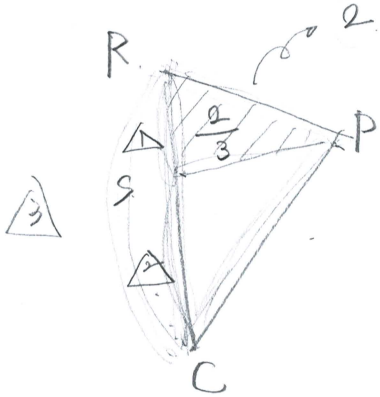


比と面積

1. 相似 △

2. 同じ高さ

(底辺の比)



底辺 3 → 2

×1/3 ( ) ×1/3

1 → ?

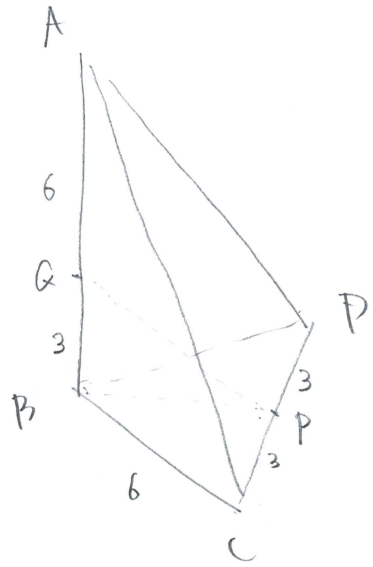
? = 2/3

□QBSR = 13/3 : △AQR : 4

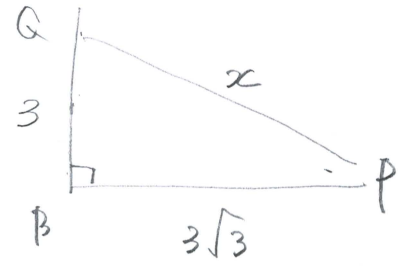
□QBSR : △AQR = 13/3 : 4

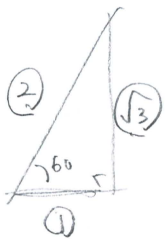
1 : 4

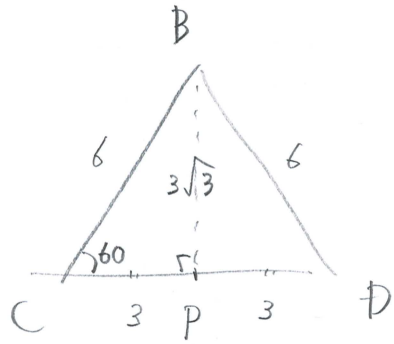
5



(1) PQの長さ







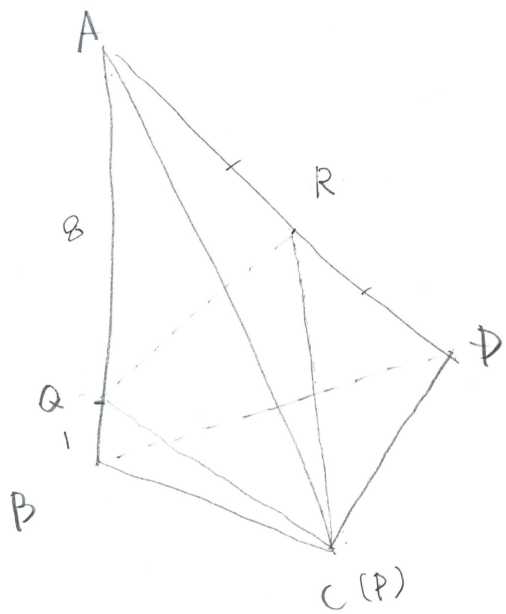
$$x = \sqrt{3^2 + (3\sqrt{3})^2}$$

$$= \sqrt{9 + 27}$$

$$= \sqrt{36} = 6.$$

(2)

R-AQP = ?



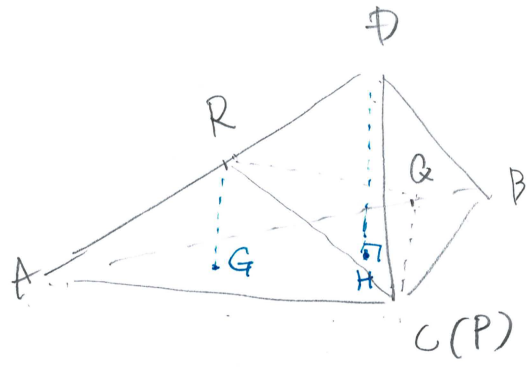
① 立体 A-BCD の体積

⇩

立体 D-ABC

立体D-ABC は { 底面積 $\frac{8}{9}$ 倍, 高さ $\frac{1}{2}$ 倍 } すると立体 R-AQP

底面 × 高さ × $\frac{1}{3}$



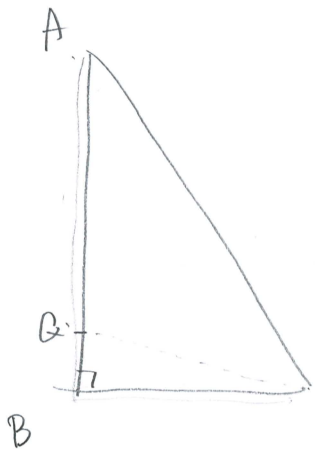
立体D-ABC = ABC × DH

↓ × $\frac{8}{9}$　↓ × $\frac{1}{2}$

立体R-AQP = AQP × RG
(AQC)

$A\text{-}BCD = \triangle BCD \times AB \times \frac{1}{3}$

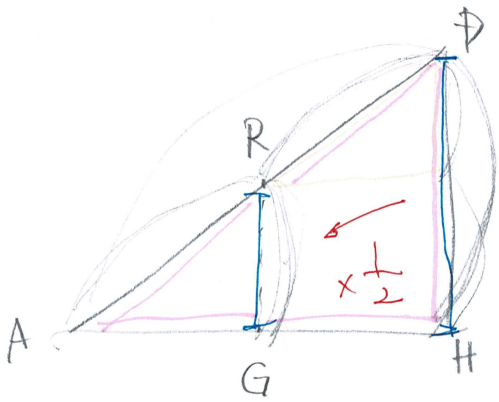
$6 \times 3\sqrt{3} \times \frac{1}{2} \times 9 \times \frac{1}{6} = 27\sqrt{3}$



$ABC = \frac{9}{AB} \times BC \times \frac{1}{2}$) × $\frac{8}{9}$

$AQP = \frac{8}{AQ} \times BC \times \frac{1}{2}$

$\triangle ABC \times \frac{8}{9} = \triangle AQP$



$R\text{-}AQP = D\text{-}ABC \times \frac{8}{9} \times \frac{1}{2}$

$= \frac{3}{27}\sqrt{3} \times \frac{4}{8}{9} \times \frac{1}{2}$

$= 12\sqrt{3}$