

慶応義塾中等部 2007

$$\text{I (1)} \quad \underbrace{\frac{5}{12} \times \left(1\frac{1}{3} - \square\right)}_{\text{②}} \div 1\frac{1}{27} = \frac{5}{16}$$

$$\text{②} = 1\frac{1}{27} \times \frac{5}{16} = \frac{28}{27} \times \frac{5}{16} = \frac{35}{108}$$

$$\frac{5}{12} \times \text{①} = \frac{35}{108} \quad \text{①} = \frac{35}{108} \div \frac{5}{12} = \frac{35}{108} \times \frac{12}{5} = \frac{7}{9}$$

$$1\frac{1}{3} - \square = \frac{7}{9} \quad \square = 1\frac{1}{3} - \frac{7}{9} = \frac{12}{9} - \frac{7}{9} = \frac{5}{9}$$

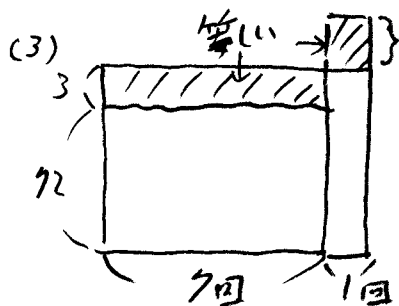
A 7 5 1 9

$$(2) \quad (58.7 \times 7.6 - 239.12 \div 4.9) \times \frac{1}{6}$$

$$= \left(\frac{587}{10} \times \frac{76}{10} - \frac{23912}{100} \times \frac{10}{49} \right) \times \frac{1}{6}$$

$$= \left(\frac{44612}{100} - \frac{4880}{10} \right) \times \frac{1}{6} = \frac{39732}{100} \times \frac{1}{6} = 6622$$

A { 7 6 6
1 2 2



$$3 \times 7 \div 1 = 21 \text{ 点}$$

$$72 + 3 + 21 = 96$$

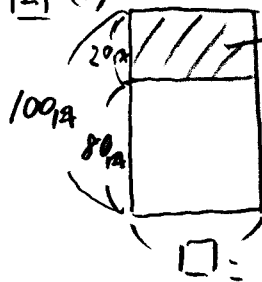
A. 96

$$(4) \quad \underbrace{6 \times 50000 \times 50000}_{\text{実際の面積}} \times \frac{1}{20000} \times \frac{1}{20000}$$

$$= \frac{3 \times 25}{2} = \frac{75}{2} = 37.5$$

A { 7 37
1 5

[2] (1)



$$960 \text{円} + 2240 = 3200$$

$$3200 \div 20 = 160 \dots (1)$$

$$960 \div 160 = 6 \text{円} \dots \text{1個あたりの損}$$

$$80 + 6 = 86 \text{円} \dots \text{原価}$$

$$A \begin{cases} \text{P} 86 \\ \text{I} 160 \end{cases}$$

(2) 1段目 2段目 3 4 10 11

最後 3 9 18 30
 3×1 3×2 3×3 3×6 3×10

3×55 3×66

$$(1 + \dots + 10) \times 10 \div 2 = 55$$

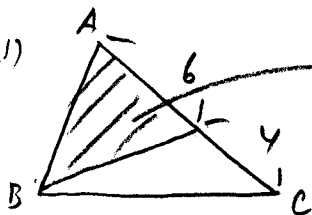
$$180 = 3 \times 60$$

$$10 \text{段目の最後} = 3 \times 55 = 165$$

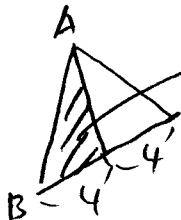
$$180 - 165 = 15$$

$$A \begin{cases} \text{P} 11 \\ \text{I} 15 \end{cases} \begin{matrix} \text{(後目)} \\ \text{(前目)} \end{matrix}$$

[3] (1)

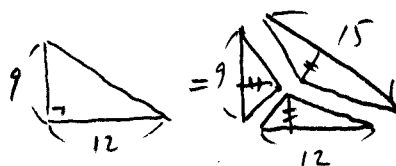
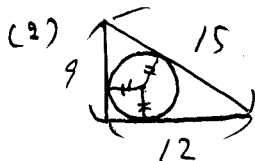


$$36 \times \frac{6}{6+4} = 36 \times \frac{3}{5}$$



$$36 \times \frac{3}{5} \times \frac{1}{2} = 10.8$$

$$A \begin{cases} \text{P} 10 \\ \text{I} 8 \end{cases}$$

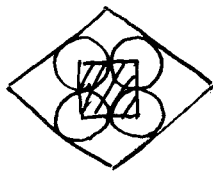


$$\text{半} = \frac{108}{36} = 3 \text{cm}$$

$$9 \times 12 = 9 \times \text{半} + 12 \times \text{半} + 15 \times \text{半}$$

$$108 = (9 + 12 + 15) \times \text{半}$$

次へ.



$$\begin{aligned}
 \text{cloud} &= \text{circle} \times 4 + \text{square}^{3 \times 2 = 6} \\
 &= 3 \times 3 \times 3.14 \times \frac{3}{4} \times 4 + 6 \times 6 \\
 &= 84.78 + 36 = 120.78
 \end{aligned}$$

$$\text{diamond} - \text{cloud} = 18 \times 24 \times \frac{1}{2} - 120.78 = 216 - 120.78 = 95.22$$

A. 3, 195, 22

[4] (1)

$$\begin{aligned}
 27\frac{1}{2} - 4\frac{1}{2} - 5\frac{1}{2} &= 18\frac{1}{2} \quad \text{↑} \quad 16 - 7 = 9 \text{ cm} \quad 9 \div 18 = 0.5 \text{ cm} / \frac{1}{2} \text{ ずつ} \\
 &\quad \uparrow \\
 &\quad 1\frac{1}{2}
 \end{aligned}$$

$$\begin{aligned}
 21\frac{1}{2} - 4\frac{1}{2} - 5\frac{1}{2} &= 12\frac{1}{2} \quad 0.5 \times 12 = 6 \text{ cm} \quad \text{---} \quad 16 \text{ cm} \text{ ずつ } 6 \text{ cm} \wedge 3. \\
 16 - 6 &= 10
 \end{aligned}$$

A. 10

$$(2) \quad 16 - 3 = 13 \text{ cm} \quad 13 \div 0.5 = 26\frac{1}{2}$$

$$4\frac{1}{2} + 26\frac{1}{2} + 5\frac{1}{2} = 35$$

A 35

$$[5] \quad (1) \quad 279 \rightarrow 2 \times 9 \times 9 = 126 \quad 1 \times 2 \times 6 = 12 \quad 1 \times 2 = 2 \quad \underline{\underline{A. 2}}$$

(2) 6の約数の組合せ

	1	2	3	6	
	↓	↓	↓	↓	
	6	3	2	1	
	↙	↓	↓	↓	
	(16)	(23)	(32)	(61)	

16 →	1	2	4	8	16	
	↓	↓	↓	↓	↓	
	16	8	4	2	1	
			(28)	(42)	(82)	

23 →	1	23	
	↓	↓	
	23	1	

32 →	1	2	4	8	16	32
	↓	↓	↓	↓	↓	↓
	32	16	8	4	2	1
			(48)	(84)		

61 →	1	61
	↓	↓
	61	1

28 →	4	7
	↓	↓
	7	4
	(47)	(74)

48 →	6	8
	↓	↓
	8	6
	(68)	(86)

A 13

⑥ (1) 1段 登子 → 1通り

2段 登子 → $\begin{matrix} 1-1 \\ 2 \end{matrix} \} 2通り$

3段 → 4通り

4段 → 1歩目 残り

$\begin{matrix} 1 & 3段 \rightarrow 4通り \\ 2 & 2段 \rightarrow 2通り \\ 3 & 1段 \rightarrow 1通り \end{matrix} \} 7$

A 7通り

(2) 5段 1歩目 残り

$\begin{matrix} 1 & 4段 \rightarrow 7通り \\ 2 & 3段 \rightarrow 4通り \\ 3 & 2段 \rightarrow 2通り \end{matrix} \} 13通り$

6段 $\begin{matrix} 1 & 5 \rightarrow 13 \\ 2 & 4 \rightarrow 7 \\ 3 & 3 \rightarrow 4 \end{matrix} \} 24通り$

7段 $\begin{matrix} 1 & 6 \rightarrow 24 \\ 2 & 5 \rightarrow 13 \\ 3 & 4 \rightarrow 7 \end{matrix} \} 44通り$

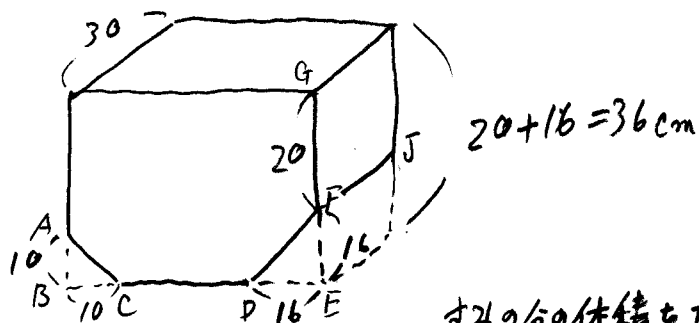
8段 $\begin{matrix} 1 & 7 \rightarrow 44 \\ 2 & 6 \rightarrow 24 \\ 3 & 5 \rightarrow 13 \end{matrix} \} 81通り$

9段 $\begin{matrix} 1 & 8 \rightarrow 81 \\ 2 & 7 \rightarrow 44 \\ 3 & 6 \rightarrow 24 \end{matrix} \} 149通り$

10段 $\begin{matrix} 1 & 9 \rightarrow 149 \\ 2 & 8 \rightarrow 81 \\ 3 & 7 \rightarrow 44 \end{matrix} \} 274通り$

A. 274通り

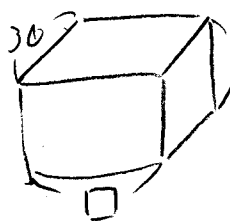
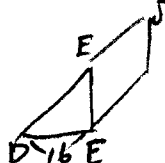
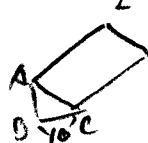
7



すなわちこの体積を加えて直方形として考える。

(1)

$$= 36900 + 10 \times 10 \times \frac{1}{2} \times 30 + 16 \times 16 \times \frac{1}{2} \times 30 = 42240 \text{ cm}^3$$

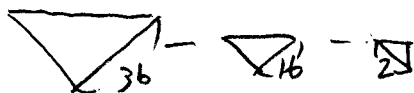
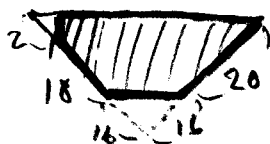


$$\square = 42240 \div 30 \div 32 = 44 \text{ cm}$$

$$44 - (10 + 16) = 18$$

A. 18

(2)



$$= (36 \times 36 \times \frac{1}{2} - 16 \times 16 \times \frac{1}{2} - \underbrace{2 \times 2 \times \frac{1}{2} \times \frac{1}{2}}_{\text{V字形}}) \times 30$$

$$= 519 \times 30 = 15570$$

$$36900 - 15570 = 21330$$

A. 21330