

鎌倉学園中学校 2007年算数

$$\begin{aligned}
 \text{I} (1) \quad & 52 + 48 \div (12 - 8 \div 2) - 2 \times 25 \\
 &= 52 + 48 \div (12 - 4) - 50 \\
 &= 52 + 48 \div 8 - 50 \\
 &= 52 + 6 - 50 \\
 &= 58 - 50 \\
 &= \underline{\underline{8}}
 \end{aligned}$$

$$\begin{aligned}
 (2) \quad & 2\frac{1}{4} \times \frac{7}{9} - \frac{5}{6} \div \frac{5}{3} - \frac{1}{4} \\
 &= \frac{18}{4} \times \frac{7}{9} - \frac{18}{6} \times \frac{3}{5} - \frac{1}{4} \\
 &= \frac{7}{2} - \frac{1}{2} - \frac{1}{4} \\
 &= \frac{7-2-1}{4} \\
 &= \frac{4}{4} = \underline{\underline{1}}
 \end{aligned}$$

$$\begin{aligned}
 (3) \quad & \left\{ 0.75 + \left(\frac{5}{8} - \frac{1}{16} \right) \div 0.5 \right\} \div 3 \frac{3}{4} \\
 &= \left\{ \frac{3}{4} + \left(\frac{10}{16} - \frac{1}{16} \right) \div \frac{1}{2} \right\} \times \frac{4}{15} \\
 &= \left(\frac{3}{4} + \frac{9}{16} \times \frac{2}{1} \right) \times \frac{4}{15} \\
 &= \frac{1}{2} + \frac{9}{8} \times \frac{4}{15} \\
 &= \frac{1}{2} + \frac{3}{5} \\
 &= \frac{5}{10} + \frac{6}{10} = \frac{11}{10}
 \end{aligned}$$

$$\begin{aligned}
 (4) \quad & 200 \frac{7}{10} + (200 + 0.7) \times 2 + 200 \frac{7}{10} \times 3 \\
 & \quad \quad \quad + (200 + 0.7) \times 4 \\
 &= 200 \frac{7}{10} \times (1 + 2 + 3 + 4) \\
 &= \frac{2007}{10} \times 10 = \underline{\underline{2007}}
 \end{aligned}$$

$$\begin{aligned}
 \text{II} (1) \quad & \frac{1}{2} + \square \times \left(\frac{1}{7} - \frac{3}{28} \right) + \frac{1}{12} \div \frac{17}{50} = 4.5 \\
 & \frac{1}{2} + \square \times \frac{1}{28} + \frac{5}{12} \times \frac{50}{17} = 4.5
 \end{aligned}$$

$$\begin{aligned}
 (2) \quad & \frac{\Delta}{\bigcirc} \times \frac{43}{12} \rightarrow \bigcirc \text{は} 43 \text{の約数} \\
 & \quad \quad \quad \rightarrow \Delta \text{は} 12 \text{の倍数} \\
 & \frac{\Delta}{\bigcirc} \times \frac{129}{20} \rightarrow \bigcirc \text{は} 129 \text{の約数} \\
 & \quad \quad \quad \rightarrow \Delta \text{は} 20 \text{の倍数} \\
 & \frac{\Delta}{\bigcirc} \rightarrow 12 \text{と} 20 \text{の公倍数の最小のもの} \\
 & \quad \quad \rightarrow 43 \text{と} 129 \text{の公約数の最大のもの}
 \end{aligned}$$

$$\square \times \frac{1}{28} = 4.5 - 1.5 - 2.5 = 0.5$$

$$\begin{aligned}
 \square &= 0.5 \div \frac{1}{28} \\
 &= \frac{1}{2} \times \frac{28}{1} \\
 &= \underline{\underline{14}}
 \end{aligned}$$

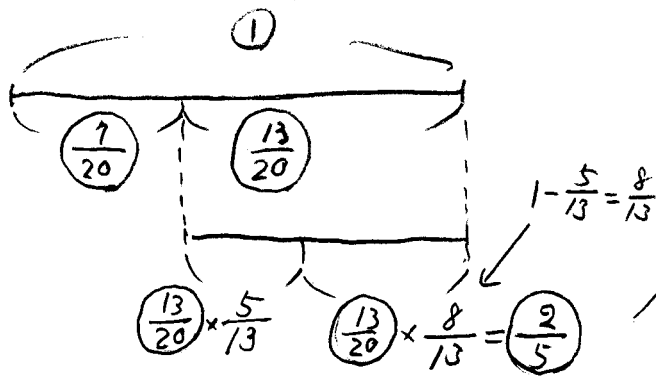
$$\begin{array}{r}
 2 \overline{) 12, 20} \quad 43 \overline{) 43, 129} \\
 \underline{2 \overline{) 6, 10}} \quad \underline{1 \overline{) 3}} \\
 3, 5 \quad \quad \quad 1, 3
 \end{array}$$

$$\begin{aligned}
 \Delta &= 2 \times 2 \times 3 \times 5 = 60 \\
 \bigcirc &= 43
 \end{aligned}$$

$$\frac{\Delta}{\bigcirc} = \frac{60}{43} = 1 \frac{17}{43}$$

$$\underline{\underline{A. 1 \frac{17}{43}}}$$

(3) 全体を1として線分図で表す



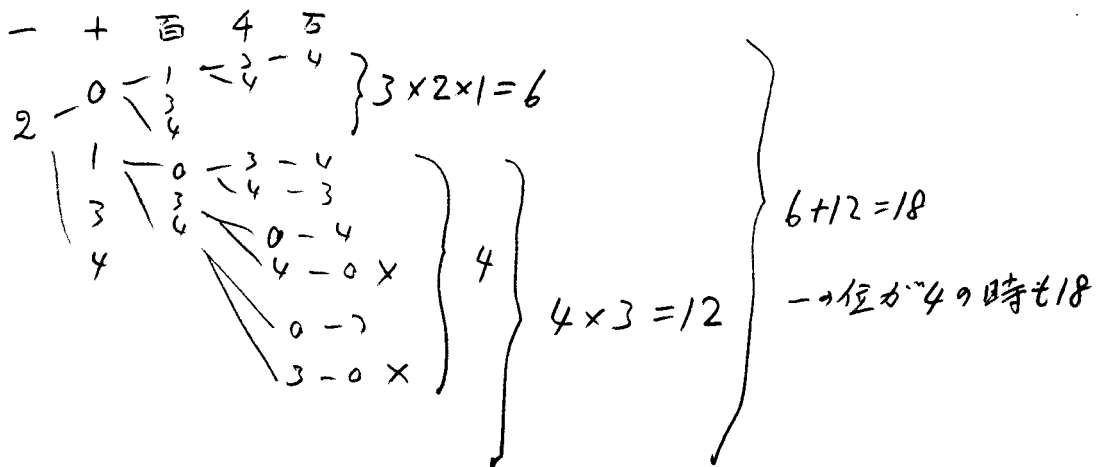
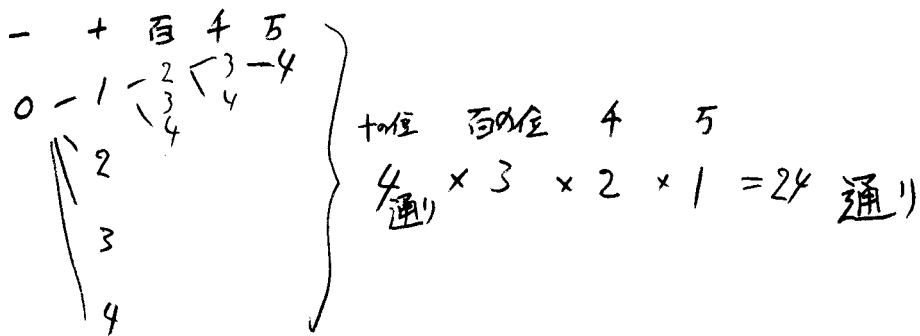
→ 全体 $\frac{2}{5}$ が 52km

$$\text{全} \times \frac{2}{5} = 52$$

$$\text{全} = 52 \div \frac{2}{5} = 130$$

A. 130

(4) 偶数 → 一の位が 0, 2, 4

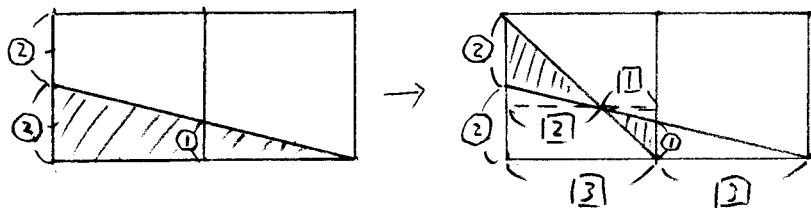


$$24 + 18 + 18 = 60 \text{ 通り}$$

↑ ↑ ↑
一の位が 0, 2, 4

A. 60

3 (1)



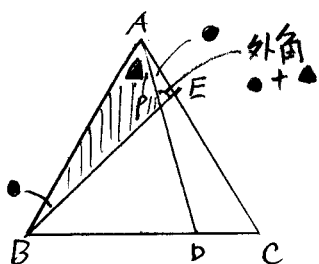
$$\Delta PGQ = \textcircled{1} \times \textcircled{1} \times \frac{1}{2} = \frac{1}{2}$$

$$\text{四角形 } ABCD = \textcircled{4} \times \textcircled{16} = 24$$

$$\left. \begin{array}{l} \Delta PGQ = \frac{1}{2} \\ \text{四角形 } ABCD = 24 \end{array} \right\} \frac{1}{2} : 24 = 1 : 48$$

A. 48

(2)



ΔABE と ΔCAD は合同なため $\angle CAD = \angle ABE \dots \bullet + \blacktriangle$

$\angle APE$ は ΔABP の外角で $\angle ABE + \angle BAP = \bullet + \blacktriangle$

$\angle BAC = 60^\circ = \bullet + \blacktriangle$

A 60

4 一定の数ずつ増加する数を等差数列というが

等差数列の和 = $\frac{(\text{先頭の数} + \text{最後の数}) \times \text{数列の個数}}{2}$ で表す。

(1) $\textcircled{10} = \frac{(1 + 10) \times 10}{2} = 55$

A. 55

(2) $2 \times \textcircled{7} + \textcircled{11} = 138$ $\textcircled{11} = 55 + 11 = 66$

$2 \times \textcircled{7} = 138 - 66 = 72$ $\textcircled{7} = 72 \div 2 = 36$

$\textcircled{5} = 15$ $\textcircled{6} = 15 + 6 = 21$ $\textcircled{7} = 21 + 7 = 28$ $\textcircled{8} = 28 + 8 = 36$

A. 8

(3) $\textcircled{9} = 36 + 9 = 45$

$210 \div \textcircled{1} + 45 \times 3 = 137$

$210 \div \textcircled{1} = 137 - 135 = 2$

$\textcircled{1} = 210 \div 2 = 105$

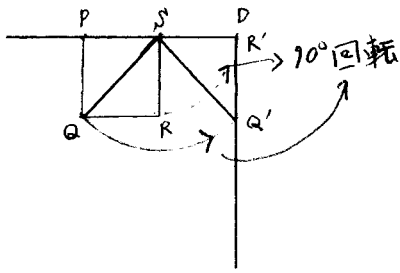
$\textcircled{12} = 66 + 12 = 78$

$\textcircled{13} = 78 + 13 = 91$

$\textcircled{14} = 91 + 14 = 105$

A. 14

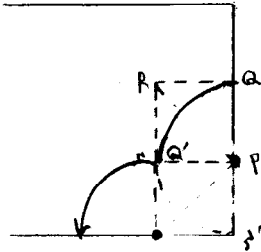
5 (1)



$$\frac{1.4 \times 2 \times 3.14 \times \frac{90}{360}}{\text{対角線と半径いた直径}} = 2.198$$

A. 2.198 cm

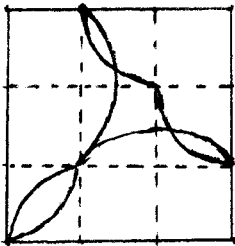
(2)



$$1 \times 2 \times 3.14 \times \frac{90}{360} \times 2 = 3.14$$

A. 3.14 cm

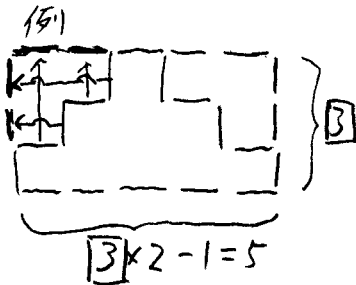
(3)



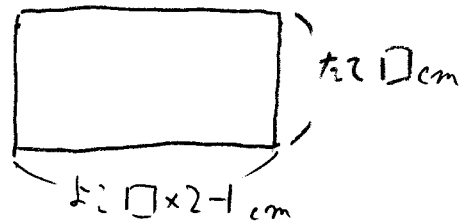
$$\begin{aligned}
 \times 4 &= \left\{ \left(\frac{1}{4} \times 4 + \frac{1}{2} \times 2 \right) \times 4 \right. \\
 &= \left(2 \times 3.14 \times \frac{1}{4} \times 4 + 2.8 \times 3.14 \times \frac{1}{4} \times 2 \right) \times 4 \\
 &= (6.28 + 4.396) \times 4 \\
 &= 10.676 \times 4 = 42.704
 \end{aligned}$$

A. 42.704 cm

6



□段目の周りの数は



$$\begin{aligned}
 (1) \quad & \text{左} 7 \times 2 \quad \text{上} 7 \times 2 \\
 & 6 \times 2 + (6 \times 2 - 1) \times 2 = 12 + 22 = 34
 \end{aligned}$$

A. 34 cm

$$(2) \quad 30 \times 2 + (30 \times 2 - 1) \times 2 = 60 + 118 = 178$$

A. 178 cm

$$(3) \quad \square \times 2 + (\square \times 2 - 1) \times 2 = 604$$

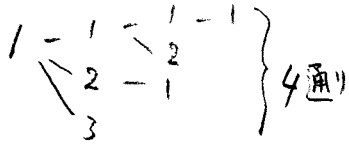
$$\square \times 2 + \square \times 4 - 2 = 604$$

$$\square \times 6 = 606 \quad \square = 606 \div 6 = 101$$

A. 101 段目

7

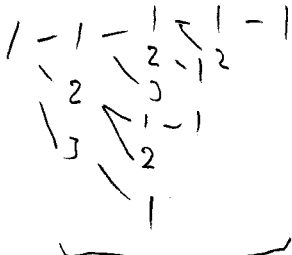
(1)


$$2 \begin{matrix} -1 & -1 \\ & 2 \end{matrix} \} 2 \text{通り}$$

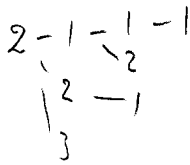
3-1 } 通り

A. 7通り

(2)



残り4点左の通り



残り3点ごと
例の4通り

$$\begin{array}{r} 3-1 \\ \quad \backslash \\ \quad \quad 2 \end{array}$$

A 13 通り

(3)

6点だと 1回目 1点 → 残り5点 → 13通り
2点 → 残り4点 → 7通り
3点 → 残り3点 → 4通り } 24通り

7点だち 14日 1点 → 残り 6点 → 24通り
2点 → 5点 → 13通り } 44通り
3点 → 4点 → 7通り

8点

1	→	7	→	44
2	→	6	→	24
3	→	5	→	13

} 8/通り

9点

1	→	8	→	81
2	→	7	→	44
3	→	6	→	24

} 149 通り

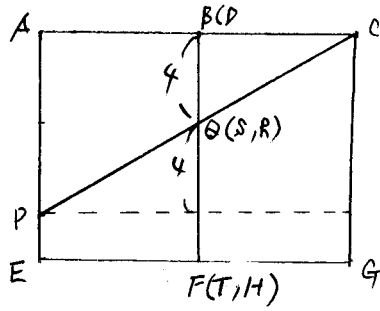
10点

1	→	9	→	149
2	→	8	→	81
3	→	7	→	44

} 274通

A 274 通り

8 辺BFとDHから見た方向から見て



$$(1) 10\text{cm} - 4\text{cm} = 6\text{cm}$$

$$\underline{A. 6\text{cm}}$$

$$(2) 10\text{cm} - 8\text{cm} = 2\text{cm}$$

$$\underline{A. 2\text{cm}}$$

(3) 上の図の点線から上の体積の半分.

$$10 \times 10 \times 8 \times \frac{1}{2} = 400$$

$$\underline{A. 400\text{cm}^3}$$