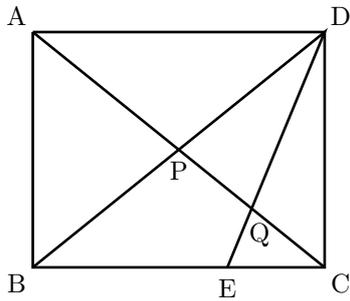


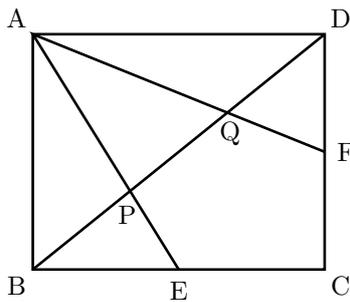
反射テスト 線分比 長方形と連比 01

1. 下図の長方形について問に答えよ。(S級 50秒, A級 1分30秒, B級 2分30秒, C級 4分)

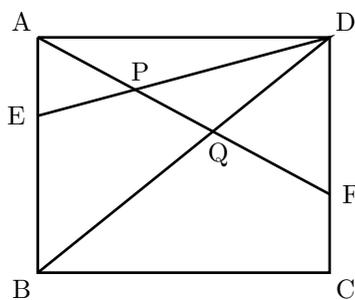
(1) $BE : EC = 2 : 1$ のとき, $AP : PQ : QC$ を求めよ.



(2) $BE : EC = 1 : 1$, $CF : FD = 1 : 1$ のとき, $BP : PQ : QD$ を求めよ.

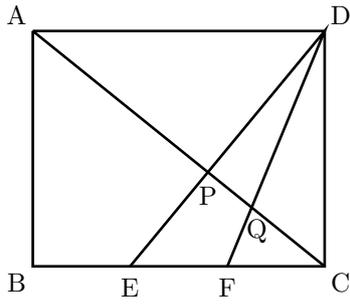


(3) $AE : EB = 1 : 2$, $CF : FD = 1 : 2$ のとき, $AP : PQ : QF$ を求めよ.

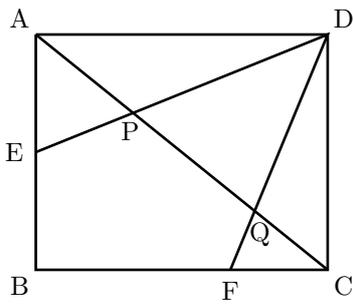


2. 下図の長方形について問に答えよ。(S級1分20秒, A級2分20秒, B級3分40秒, C級5分)

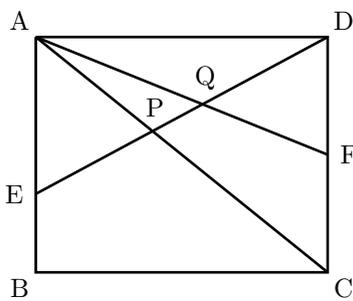
(1) $BE : EF : FC = 1 : 1 : 1$ のとき, $AP : PQ : QC$ を求めよ.



(2) $AE : EB = 1 : 1$, $BF : FC = 2 : 1$ のとき, $AP : PQ : QC$ を求めよ.



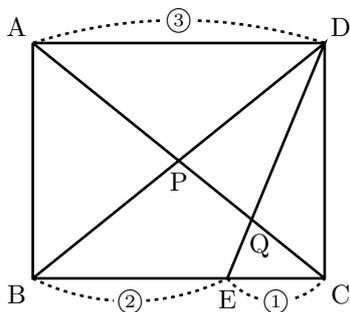
(3) $AE : EB = 2 : 1$, $CF : FD = 1 : 1$ のとき, $EP : PQ : QD$ を求めよ.



反射テスト 線分比 長方形と連比 01 解答解説

1. 下図の長方形について問に答えよ。(S級 50秒, A級 1分30秒, B級 2分30秒, C級 4分)

(1) $BE:EC = 2:1$ のとき, $AP:PQ:QC$ を求めよ.



★直線図形の基本は三角形

$$\triangle PDA \sim \triangle PBC \Rightarrow AP:PC = \textcircled{3}:\textcircled{3} = 1:1$$

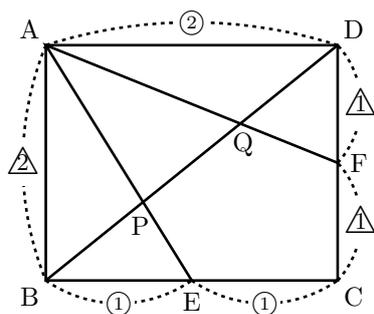
$$\therefore AP = \frac{1}{2}AC \quad PC = \frac{1}{2}AC$$

$$\triangle QDA \sim \triangle QEC \Rightarrow AQ:QC = \textcircled{3}:\textcircled{1} = 3:1$$

$$\therefore AQ = \frac{3}{4}AC \quad QC = \frac{1}{4}AC$$

$$\therefore AP:PQ:QC = \frac{1}{2}:\left(\frac{3}{4}-\frac{1}{2}\right):\frac{1}{4} = 2:1:1 \quad \dots\text{答え}$$

(2) $BE:EC = 1:1$, $CF:FD = 1:1$ のとき, $BP:PQ:QD$ を求めよ.



★直線図形の基本は三角形

$$\triangle PDA \sim \triangle PBE \Rightarrow BP:PD = \textcircled{1}:\textcircled{2} = 1:2$$

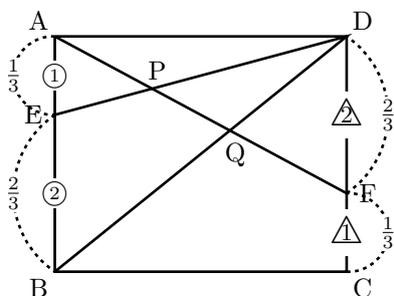
$$\therefore BP = \frac{1}{3}BD \quad PD = \frac{2}{3}BD$$

$$\triangle QAB \sim \triangle QFD \Rightarrow BQ:QD = \triangle:\triangle = 2:1$$

$$\therefore BQ = \frac{2}{3}BD \quad QD = \frac{1}{3}BD$$

$$\therefore BP:PQ:QD = \frac{1}{3}:\left(\frac{2}{3}-\frac{1}{3}\right):\frac{1}{3} = 1:1:1 \quad \dots\text{答え}$$

(3) $AE:EB = 1:2$, $CF:FD = 1:2$ のとき, $AP:PQ:QF$ を求めよ.



★直線図形の基本は三角形

$$\triangle PAE \sim \triangle PFD \Rightarrow AP:PF = \frac{1}{3}:\frac{2}{3} = 1:2$$

$$\therefore AP = \frac{1}{3}AF \quad PF = \frac{2}{3}AF$$

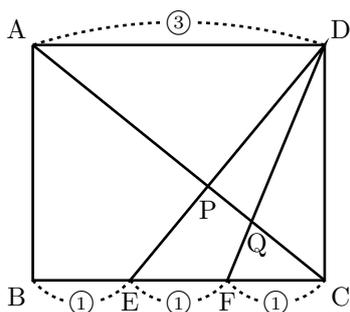
$$\triangle QAB \sim \triangle QFD \Rightarrow AQ:QF = 1:\frac{2}{3} = 3:2$$

$$\therefore AQ = \frac{3}{5}AF \quad QF = \frac{2}{5}AF$$

$$\therefore AP:PQ:QF = \frac{1}{3}:\left(\frac{3}{5}-\frac{1}{3}\right):\frac{2}{5} = 5:4:6 \quad \dots\text{答え}$$

2. 下図の長方形について問に答えよ。(S級1分20秒, A級2分20秒, B級3分40秒, C級5分)

(1) $BE : EF : FC = 1 : 1 : 1$ のとき, $AP : PQ : QC$ を求めよ.



★直線図形の基本は三角形

$$\triangle PDA \sim \triangle PEC \Rightarrow AP : PC = \textcircled{3} : \textcircled{2} = 3 : 2$$

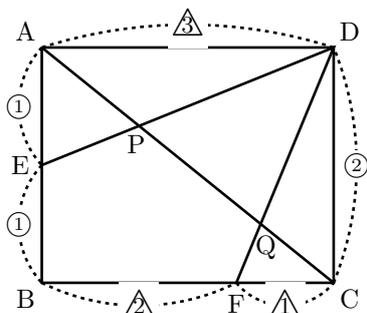
$$\therefore AP = \frac{3}{5}AC \quad PC = \frac{2}{5}AC$$

$$\triangle QDA \sim \triangle QFC \Rightarrow AQ : QC = \textcircled{3} : \textcircled{1} = 3 : 1$$

$$\therefore AQ = \frac{3}{4}AC \quad QC = \frac{1}{4}AC$$

$$\therefore AP : PQ : QC = \frac{3}{5} : \left(\frac{3}{4} - \frac{3}{5}\right) : \frac{1}{4} = 12 : 3 : 5 \quad \dots\text{答え}$$

(2) $AE : EB = 1 : 1$, $BF : FC = 2 : 1$ のとき, $AP : PQ : QC$ を求めよ.



★直線図形の基本は三角形

$$\triangle PAE \sim \triangle PCD \Rightarrow AP : PC = \textcircled{1} : \textcircled{2} = 1 : 2$$

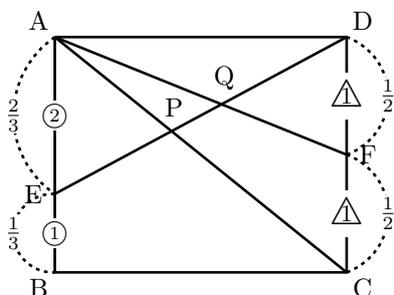
$$\therefore AP = \frac{1}{3}AC \quad PC = \frac{2}{3}AC$$

$$\triangle QDA \sim \triangle QFC \Rightarrow AQ : QC = \triangle 3 : \triangle 1 = 3 : 1$$

$$\therefore AQ = \frac{3}{4}AC \quad QC = \frac{1}{4}AC$$

$$\therefore AP : PQ : QC = \frac{1}{3} : \left(\frac{3}{4} - \frac{1}{3}\right) : \frac{1}{4} = 4 : 5 : 3 \quad \dots\text{答え}$$

(3) $AE : EB = 2 : 1$, $CF : FD = 1 : 1$ のとき, $EP : PQ : QD$ を求めよ.



★直線図形の基本は三角形

$$\triangle PAE \sim \triangle PCD \Rightarrow EP : PD = \frac{2}{3} : 1 = 2 : 3$$

$$\therefore EP = \frac{2}{5}ED \quad PD = \frac{3}{5}ED$$

$$\triangle QAE \sim \triangle QFD \Rightarrow EQ : QD = \frac{2}{3} : \frac{1}{2} = 4 : 3$$

$$\therefore EQ = \frac{4}{7}ED \quad QD = \frac{3}{7}ED$$

$$\therefore EP : PQ : QD = \frac{2}{5} : \left(\frac{4}{7} - \frac{2}{5}\right) : \frac{3}{7} = 14 : 6 : 15 \quad \dots\text{答え}$$