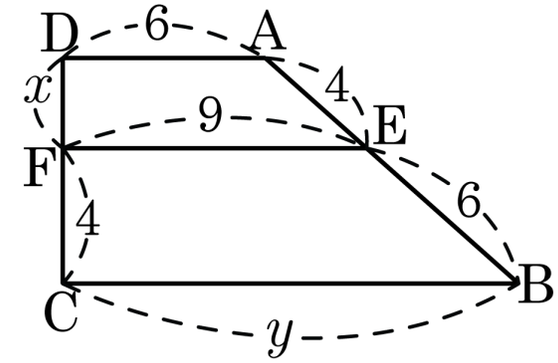
1. 다음 그림에서 $\overline{AD} // \overline{EF} // \overline{BC}$ 일 때, x, y 의 값은?



① $x = \frac{7}{3}, y = 11.5$

② $x = \frac{7}{3}, y = 12.5$

③ $x = \frac{7}{3}, y = 13.5$

④ $x = \frac{8}{3}, y = 12.5$

⑤ $x = \frac{8}{3}, y = 13.5$

해설

$4 : 6 = x : 4, 6x = 16$

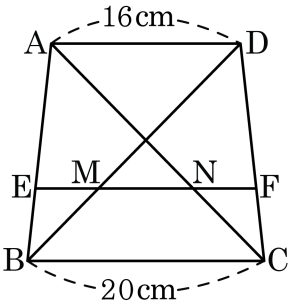
$\therefore x = \frac{8}{3}$

$4 : 10 = (9 - 6) : (y - 6)$

$4y - 24 = 30, 4y = 54$

$\therefore y = \frac{27}{2} = 13.5$

2. 다음 그림과 같이 $\overline{AD}//\overline{EF}//\overline{BC}$ 인 사다리꼴 ABCD 에서 $\overline{AE} : \overline{EB} = 2 : 1$ 일 때, $\overline{MN}$ 의 길이는?



① 8cm ② 9cm ③ 10cm ④ 11cm ⑤ 12cm

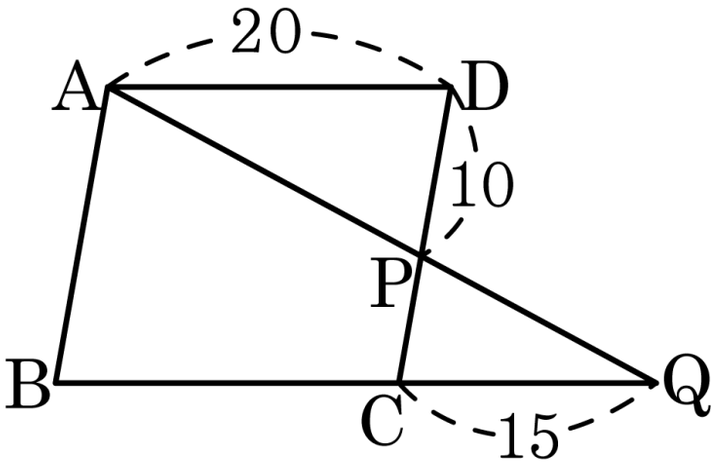
해설

i) $\triangle BEM$, $\triangle BAD$ 에서 $\angle B$ 는 공통, $\angle BEM = \angle BAD$
따라서 $\triangle BEM \backsim \triangle BAD$ (AA 닮음)
닮음비로 $\overline{EM} : \overline{AD} = \overline{BE} : \overline{BA} \Leftrightarrow \overline{EM} : 16 = 1 : 3$
$\therefore \overline{EM} = \frac{16}{3}\text{cm}$

ii) $\triangle AEN$, $\triangle ABC$ 에서 $\angle A$ 는 공통, $\angle AEN = \angle ABC$
따라서 $\triangle AEN \backsim \triangle ABC$ (AA 닮음)
닮음비로 $\overline{AE} : \overline{AB} = \overline{EN} : \overline{BC} \Leftrightarrow 2 : 3 = \overline{EN} : 20$
$\therefore \overline{EN} = \frac{40}{3}\text{cm}$

$\therefore \overline{MN} = \overline{EN} - \overline{EM} = \frac{40}{3} - \frac{16}{3} = 8(\text{cm})$

3. 다음 평행사변형 ABCD 에서 $\overline{AB}$ 의 길이는?



① $\frac{33}{2}$ ② $\frac{35}{3}$ ③ $\frac{35}{2}$ ④ $\frac{37}{2}$ ⑤ $\frac{37}{3}$

해설

$\overline{AB} = x$ 라고 하면

$\overline{AB} : \overline{PC} = \overline{BQ} : \overline{CQ}$

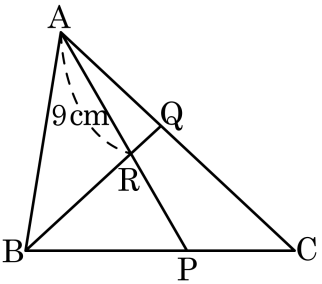
$x : (x-10) = (20+15) : 15$

$35(x-10) = 15x$

$20x = 350$

$\therefore\ x = \frac{35}{2}$

4. 다음 그림에서 $\overline{BP} : \overline{PC} = 3 : 2$, $\overline{AQ} : \overline{QC} = 3 : 4$ 이다. $\overline{AR} = 9\text{cm}$ 일 때, $\overline{RP}$ 의 길이는?

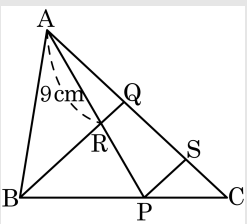


① 6.2cm ② 7.2cm ③ 8cm

④ 9cm ⑤ 9.2cm

해설

$\overline{BQ} // \overline{PS}$ 인 선분 PS 를 그으면



$\overline{PC} : \overline{BC} = \overline{SC} : \overline{QC}$

$2 : 5 = \overline{SC} : \frac{4}{7}\overline{AC}$

$5\overline{SC} = \frac{8}{7}\overline{AC}$

$\overline{SC} = \frac{8}{35}\overline{AC}$

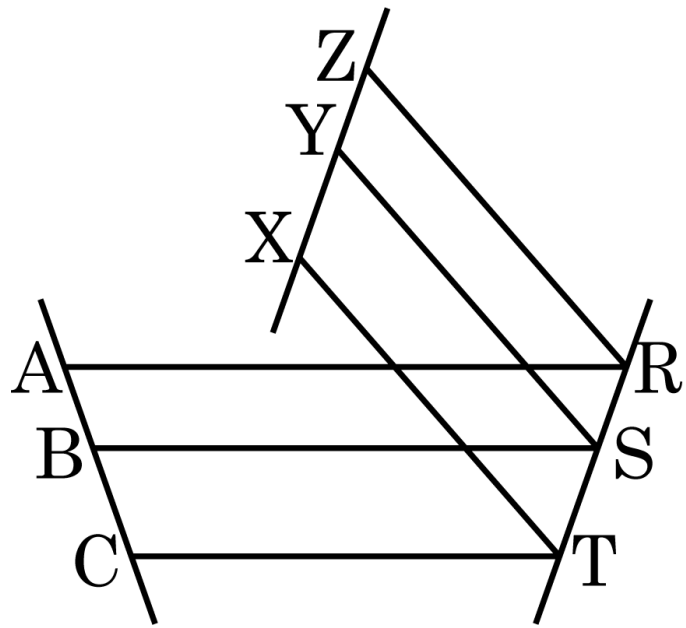
$\overline{QS} = \overline{QC} - \overline{SC} = \frac{12}{35}\overline{AC}$

$9 : \overline{RP} = \frac{3}{7}\overline{AC} : \frac{12}{35}\overline{AC}$

$9 : \overline{RP} = 5 : 4$

$\therefore\ \overline{RP} = \frac{36}{5} = 7.2(\text{cm})$

5. 다음 그림에서 $\overline{AR} \parallel \overline{BS}$, $\overline{BS} \parallel \overline{CT}$, $\overline{RZ} \parallel \overline{SY}$, $\overline{SY} \parallel \overline{TX}$, $\overline{AB} : \overline{BC} = 3 : 4$ 일 때, $\overline{XY} : \overline{XZ}$ 를 구하면?



① 3 : 7 ② 4 : 3 ③ 4 : 7 ④ 7 : 4 ⑤ 3 : 4

해설

$\overline{XY} : \overline{XZ} = \overline{TS} : \overline{TR} = \overline{CB} : \overline{CA} = 4 : 7$

$\therefore \ \overline{XY} : \overline{XZ} = 4 : 7$