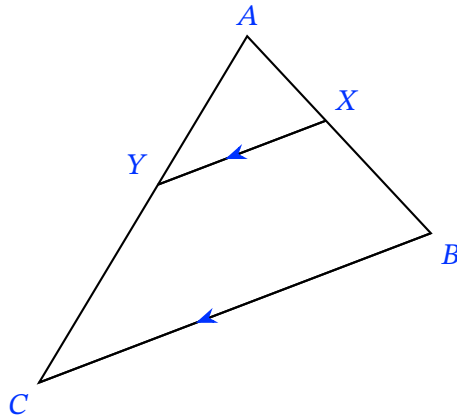


# Worksheet: Parallel Lines in a Triangle

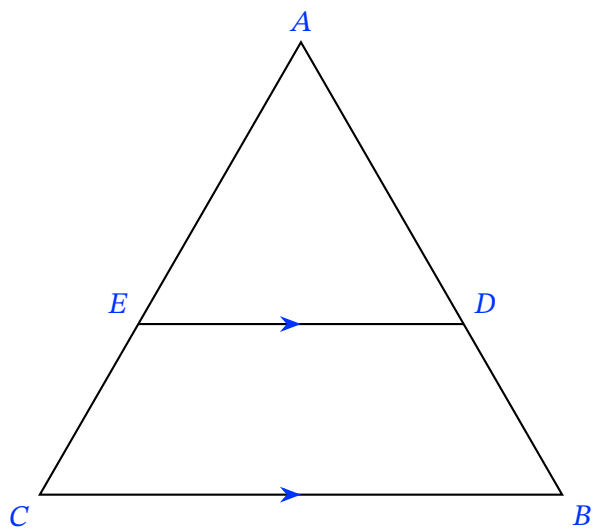


**Q1:** In the figure, segments  $\overline{XY}$  and  $\overline{BC}$  are parallel. If  $AX = 18$ ,  $XB = 24$ , and  $AY = 27$ , what is the length of  $\overline{YC}$ ?



- A 27
- B 36
- C 18
- D 6
- E 20

Q2: Determine  $\frac{AB}{BD}$ , if  $\frac{AD}{DB} = \frac{38}{23}$ .



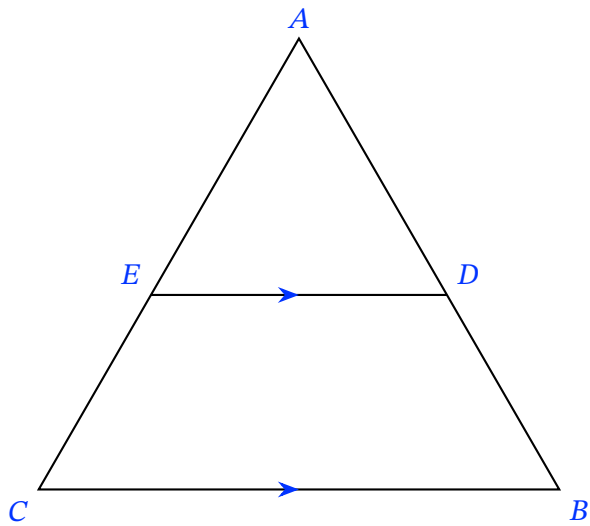
A  $\frac{38}{61}$

B  $\frac{61}{23}$

C  $\frac{61}{38}$

D  $\frac{23}{61}$

Q3: Determine  $\frac{CE}{EA}$ , if  $\frac{AD}{DB} = \frac{29}{22}$ .



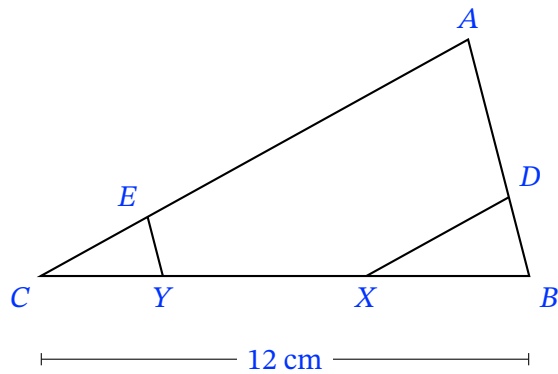
A  $\frac{29}{51}$

B  $\frac{22}{29}$

C  $\frac{51}{29}$

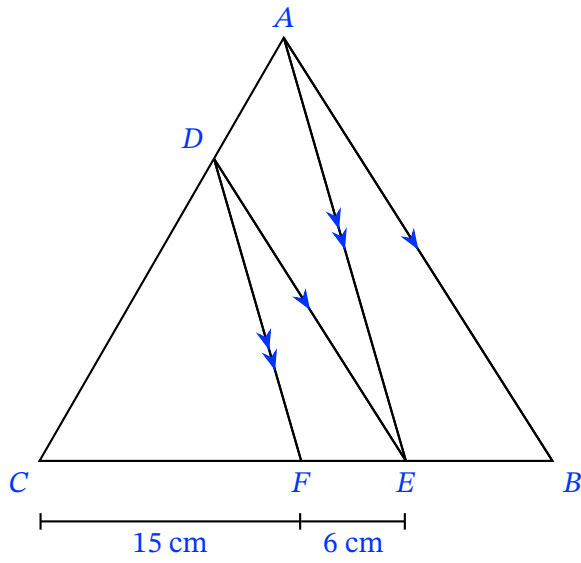
D  $\frac{29}{22}$

**Q4:** In the figure,  $\overline{DX}$  and  $\overline{EY}$  are parallel to  $\overline{AC}$  and  $\overline{AB}$  respectively. If  $BC = 12$  cm,  $\frac{AD}{DB} = 2$ , and  $EC = \frac{1}{3}AE$ , determine the length of  $\overline{XY}$ .



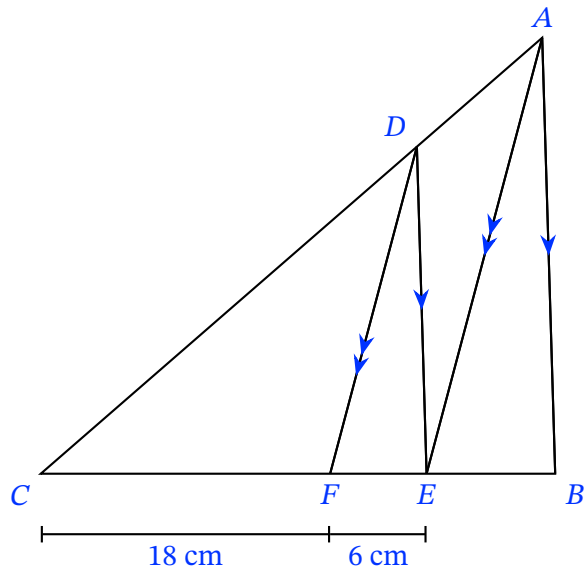
- A 4 cm
- B 9 cm
- C 3 cm
- D 5 cm

Q5: Find the length of  $\overline{CB}$ .



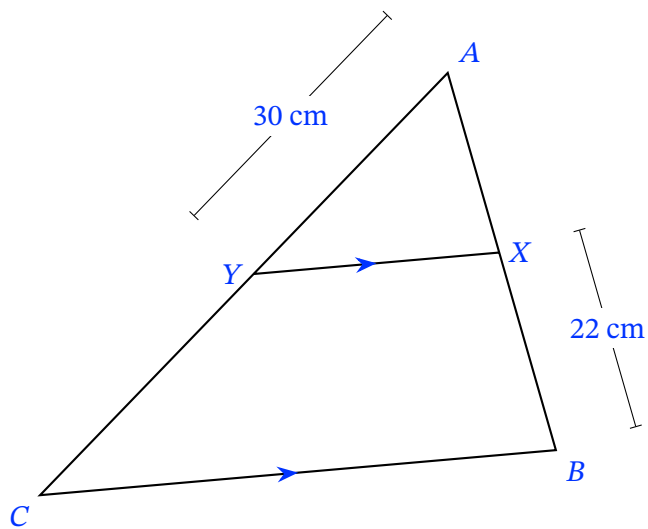
- A 21 cm
- B 29.4 cm
- C 42 cm
- D 52.5 cm

Q6: Find the length of  $\overline{CB}$ .



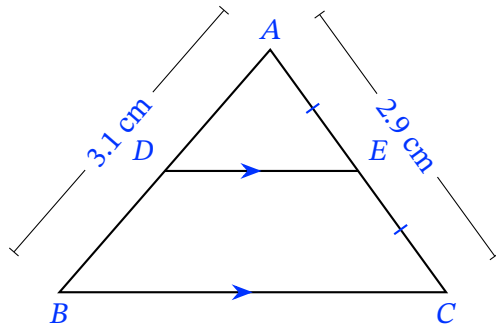
- A 24 cm
- B 32 cm
- C 48 cm
- D 72 cm

**Q7:** If  $BX = 22$  cm,  $AY = 30$  cm, and  $\frac{AX + AY}{AB + AC} = \frac{10}{21}$ , find the length of  $\overline{CY}$ .



- A 20 cm
- B 33 cm
- C 30 cm
- D 22 cm

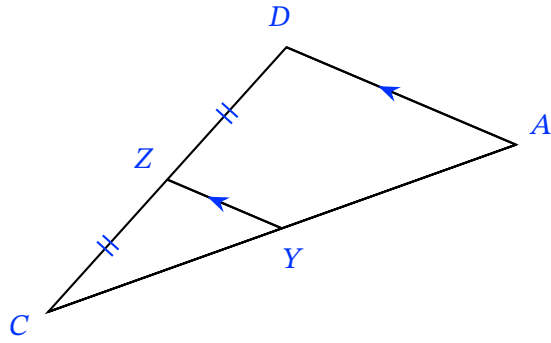
**Q8:** If the perimeter of  $\triangle ABC = 9.7$  cm,  $E$  is the midpoint of  $\overline{AC}$ , and  $\overline{DE} \parallel \overline{BC}$ , find the length of  $\overline{DE}$ .



- A 1.55 cm
- B 3.7 cm
- C 1.85 cm
- D 1.45 cm



**Q9:** Given that  $Z$  is the midpoint of  $\overline{DC}$ , the perimeter of  $\triangle ADC$  is 33 cm,  $AD = 7$  cm, and  $ZC = 5$  cm, find the length of  $\overline{AY}$ .

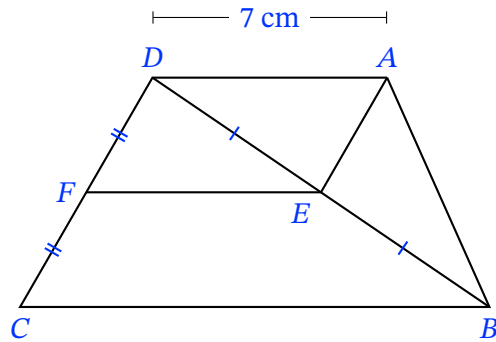


- A 8 cm
- B 11 cm
- C 10 cm
- D 16 cm

**Q10:** Given that  $AEFD$  is a parallelogram, where  $E$  and  $F$  are the midpoints of  $\overline{DB}$  and  $\overline{DC}$  respectively, find the length of  $\overline{CB}$ .

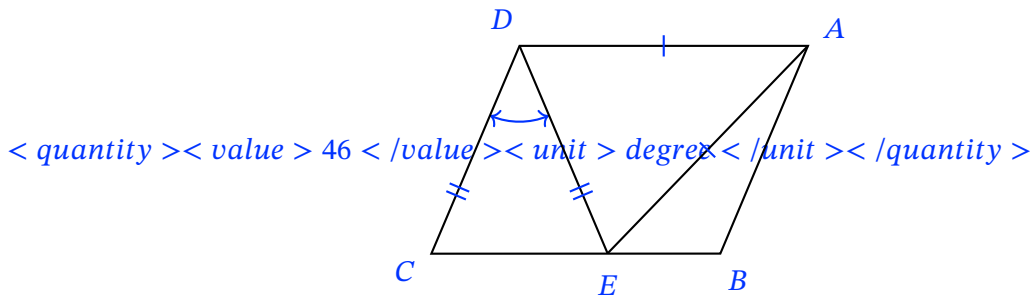


Question Video



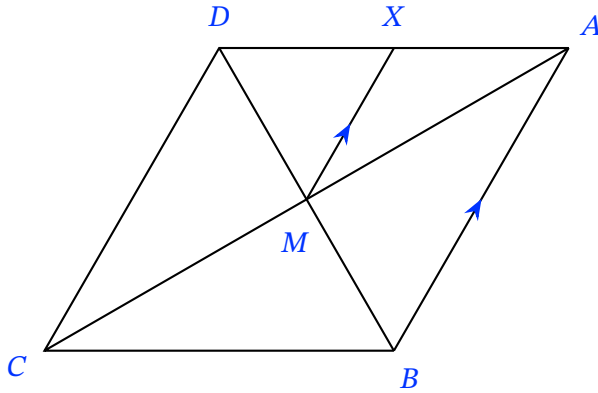
- A 7 cm
- B 21 cm
- C 3.5 cm
- D 14 cm

**Q11:** Given that  $ABCD$  is a parallelogram, find  $m\angle BAE$ .



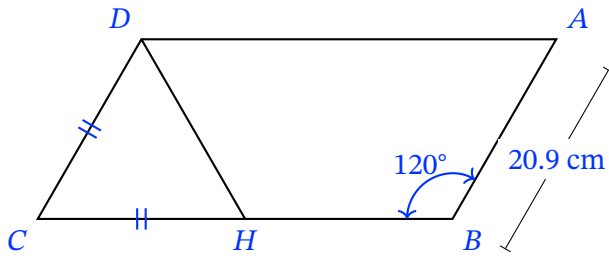
- A  $113^\circ$
- B  $21^\circ$
- C  $67^\circ$
- D  $46^\circ$

**Q12:** On the figure,  $ABCD$  is a parallelogram whose diagonals intersect at  $M$ , and  $X$  is a point on  $\overline{AD}$ . If  $MX = 38$ , what is  $CD$ ?



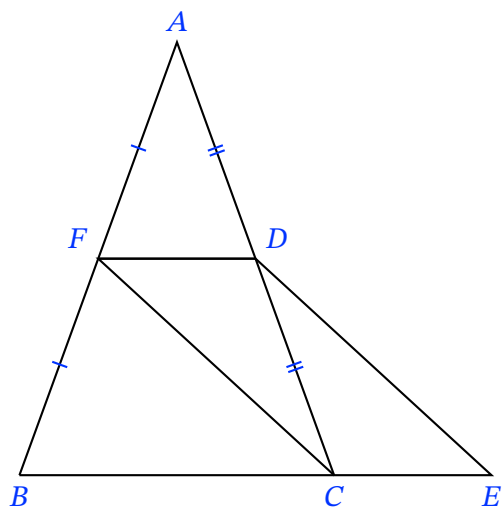
- A 38
- B 57
- C 76
- D 19

**Q13:** Given that  $ABCD$  is a parallelogram, find the length of  $\overline{DH}$ .



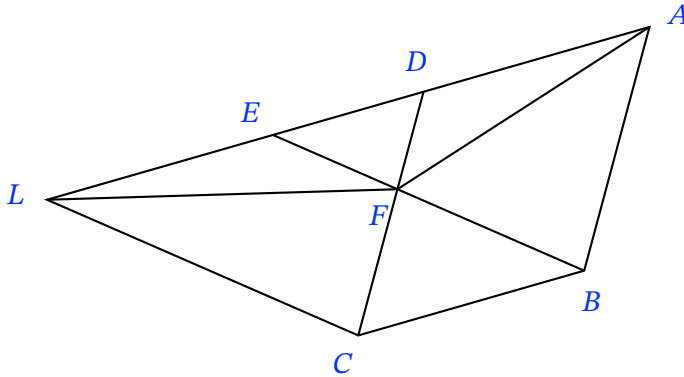
- A 10.45 cm
- B 41.8 cm
- C 6.967 cm
- D 20.9 cm

**Q14:**  $FDEC$  is a parallelogram, where  $F$  and  $D$  are the midpoints of  $\overline{AB}$  and  $\overline{AC}$ , respectively, and  $CE = 6$  cm. Determine the length of  $\overline{BC}$ .



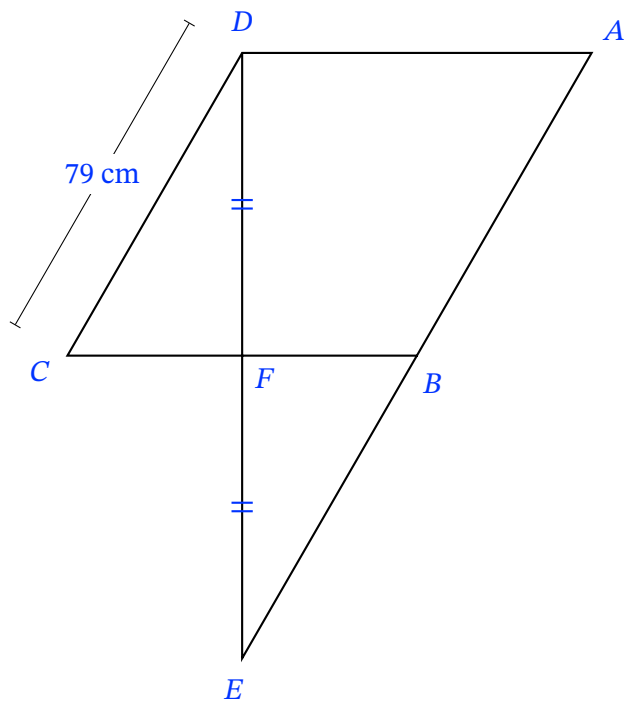
- A 12 cm
- B 6 cm
- C 18 cm

**Q15:** Given that the area of the parallelogram  $ABCD = 1,743 \text{ cm}^2$  and that of the  $\triangle AFD = 268 \text{ cm}^2$ , find the area of  $FBCL$  and that of the  $\triangle LCF$ .



- A area of  $FBCL = 1,475 \text{ cm}^2$ , area of  $\triangle LCF = 435.75 \text{ cm}^2$
- B area of  $FBCL = 871.5 \text{ cm}^2$ , area of  $\triangle LCF = 1,475 \text{ cm}^2$
- C area of  $FBCL = 1,475 \text{ cm}^2$ , area of  $\triangle LCF = 871.5 \text{ cm}^2$
- D area of  $FBCL = 435.75 \text{ cm}^2$ , area of  $\triangle LCF = 1,475 \text{ cm}^2$
- E area of  $FBCL = 1,743 \text{ cm}^2$ , area of  $\triangle LCF = 871.5 \text{ cm}^2$

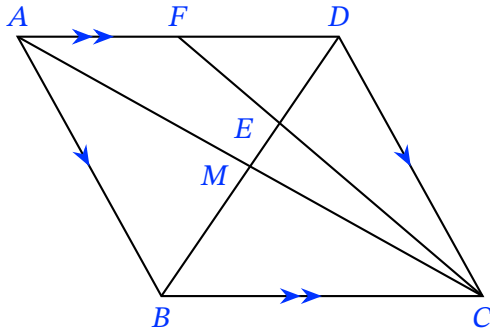
**Q16:** In the figure,  $ABCD$  is a parallelogram with  $F$  on  $\overline{BC}$  and rays  $\overrightarrow{DF}$  and  $\overrightarrow{AB}$  meeting at  $E$ . Find the length of  $\overline{BE}$ .



- A 158 cm
- B 118.5 cm
- C 79 cm
- D 39.5 cm

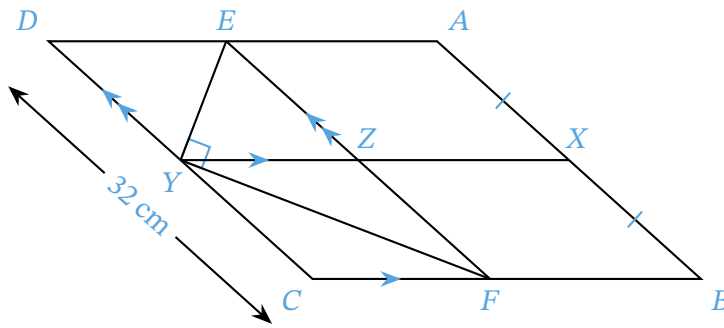


**Q17:** In the given parallelogram,  $DE = 2EM$  and  $AD = 13$  cm. Determine  $FD$ .



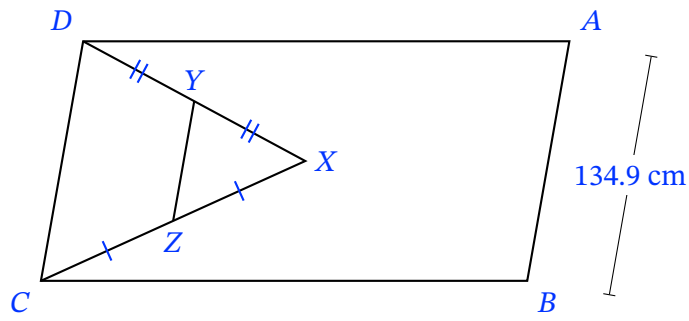
- A 8.5 cm
- B 6 cm
- C 3.25 cm
- D 6.5 cm

**Q18:** Given that  $ABCD$  is a parallelogram, find the length of  $\overline{YZ}$ .



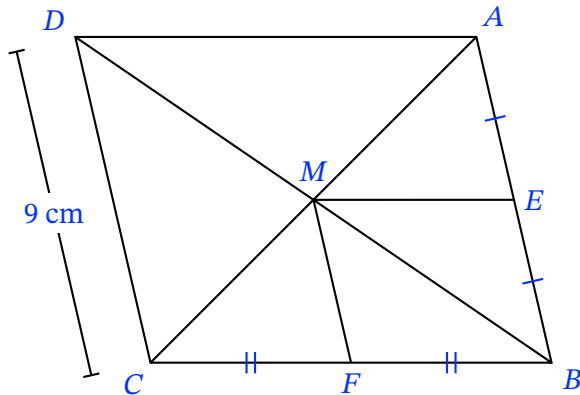
- A 12.8 cm
- B 8 cm
- C 10.67 cm
- D 16 cm

**Q19:** Given that  $ABCD$  is a parallelogram, find the length of  $\overline{YZ}$ .



- A 40.47 cm
- B 134.9 cm
- C 67.45 cm
- D 269.8 cm

**Q20:** If the perimeter of the parallelogram below is 39.6 cm, find the length of  $\overline{ME}$ .

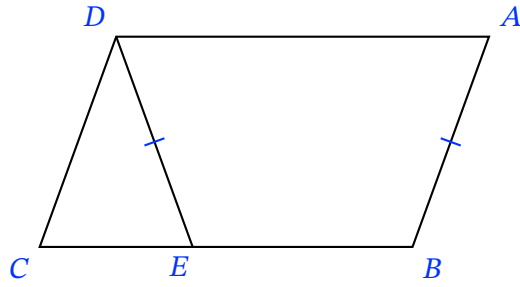


- A 5.4 cm
- B 4.5 cm
- C 15.3 cm
- D 10.8 cm

**Q21:**  $ABCD$  is a parallelogram, and  $X$  is an interior point in it, where  $\overrightarrow{DX}$  bisects angle  $ADC$ , and  $\overrightarrow{CX}$  bisects angle  $DCB$ . If  $Y$  is the midpoint of  $\overline{DC}$  and  $XY = 45$  cm, determine the length of  $\overline{YC}$ .

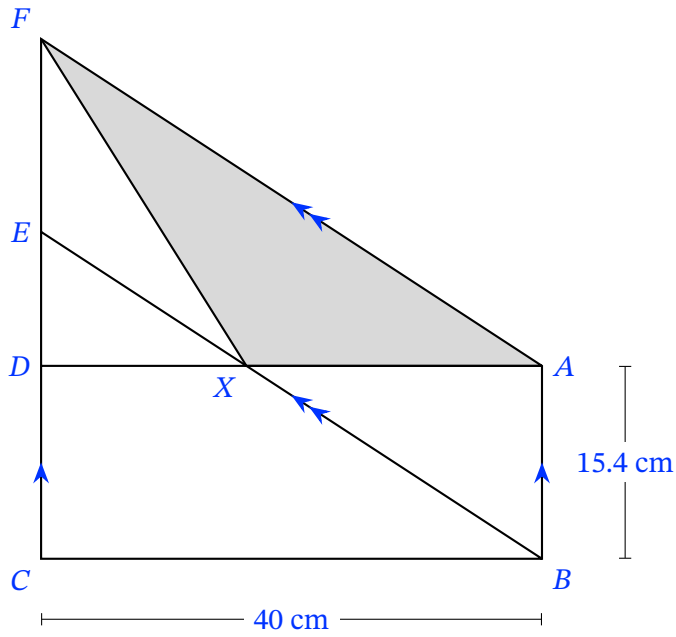
- A 45 cm
- B 22.5 cm
- C 90 cm
- D 63.6 cm

**Q22:** Given that  $ABCD$  is a parallelogram, and  $m\angle CDE = 40^\circ$ , determine  $m\angle A$ .



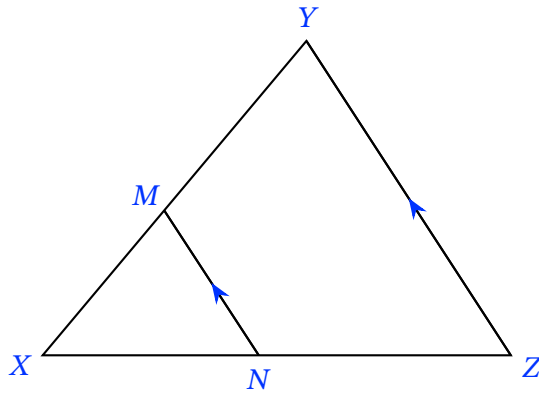
- A  $140^\circ$
- B  $40^\circ$
- C  $70^\circ$
- D  $80^\circ$

**Q23:** Given that  $ABCD$  is a rectangle, and  $ABEF$  is a parallelogram, find the area of  $\triangle XAF$ .



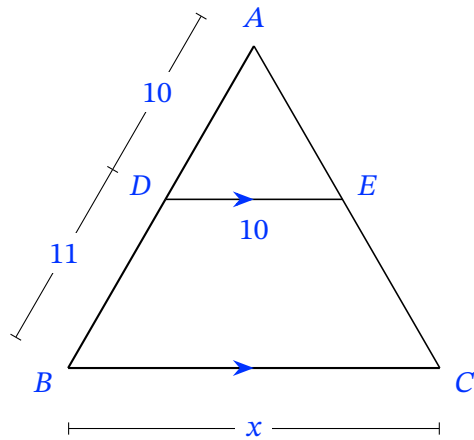
- A  $1,232\text{ cm}^2$
- B  $154\text{ cm}^2$
- C  $308\text{ cm}^2$
- D  $616\text{ cm}^2$

**Q24:** Given that  $XM = 21$ ,  $XN = 24$ , and  $NZ = 28$ , find  $XY$ .



- A 24.5
- B 45.5
- C 32
- D 59.43
- E 18

**Q25:** Find the value of  $x$ .



- A 26
- B 21
- C 19
- D 9