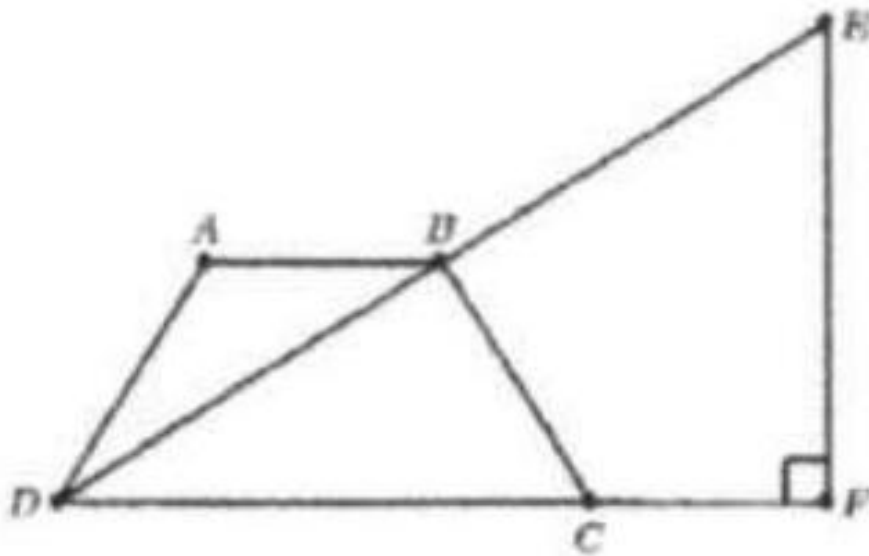


Example 4

(AMC) In the figure, $ABCD$ is an isosceles trapezoid with side lengths $AD = BC = 5$, $AB = 4$, and $DC = 10$. The point C is on DF and B is the midpoint of hypotenuse \overline{DE} in the right triangle DEF . Then $CF =$

- (A) 3.25
- (B) 3.5
- (C) 3.75
- (D) 4.0
- (E) 4.25



Solution: (D).

Method 1:

Drop perpendiculars \overline{AG} and \overline{BH} to \overline{DF} . Then $GH = 4$, so

$$DG = HC = \frac{1}{2}(DC - GH) = 3$$

(b)

(A) $7 + \frac{2}{3}\sqrt{3}$

(B) 8

(C) $9\frac{1}{2}$

(E) $8 + 3\sqrt{3}$

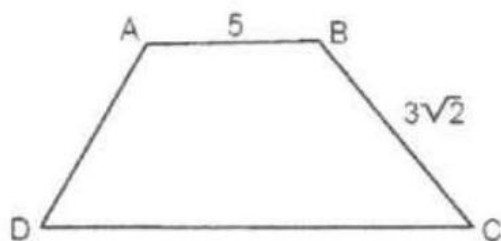
(B) 8

- (C) $9\frac{1}{2}$
 (D) $8 + \sqrt{3}$
 (D) $8 + \sqrt{3}$

$$-\ln$$

th $AB \parallel DC$; $AB = 5$;

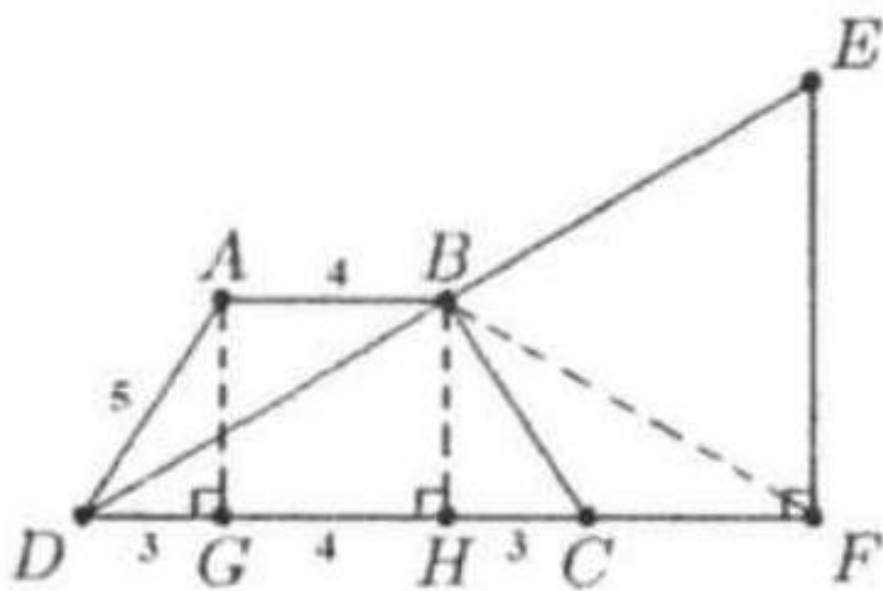
gth



Since $\overline{BH} \parallel \overline{EF}$ and B is in midpoint of DE , it follows that H is the midpoint of DF . Thus, $DH = DG + GH = 3 + 4$ and $DF = 2DH = 14$, so
 $CF = DF - DC = 14 - 10 = 4$.

Method 2:

Drop perpendiculars AG and BH to DF and connect BF .
 Then $GH = 4$, so $DG = HC = \frac{1}{2}(DC - GH) = 3$. Since $BD = BF$, triangle DBF is isosceles, and so $DH = HF$ and $CF =$



4.