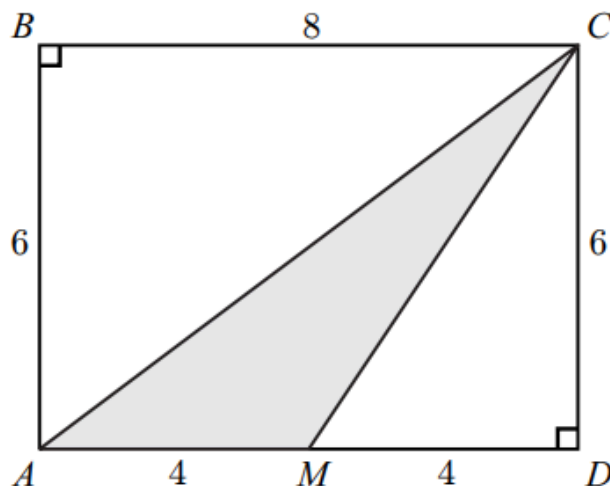2016 Q2

2. In rectangle $ABCD$, $AB = 6$ and $AD = 8$. Point M is the midpoint of $\overline{AD}$. What is the area of $\triangle AMC$?

(A) 12   (B) 15   (C) 18   (D) 20   (E) 24

2. Answer (A):

The area of $\triangle ACD$ is $\frac{1}{2} \cdot 8 \cdot 6 = 24$. The area of $\triangle MCD$ is $\frac{1}{2} \cdot 4 \cdot 6 = 12$. So the area of $\triangle AMC$ is $24 - 12 = 12$.

OR

As seen in the diagram above, the altitude from C to the line of the base $\overline{AM}$ is $\overline{CD}$. Thus the area of the shaded $\triangle AMC$ is

$$\frac{1}{2} \cdot AM \cdot CD = \frac{1}{2} \cdot 4 \cdot 6 = 12.$$