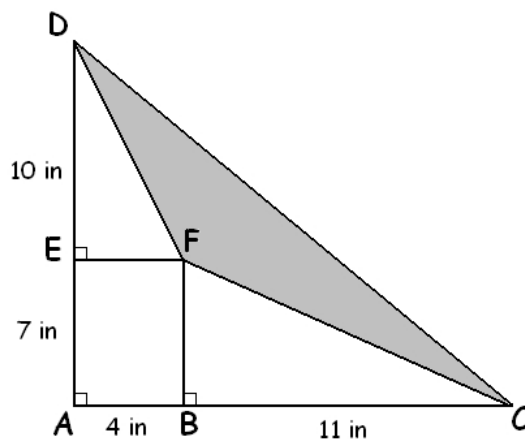


Compute the shaded area shown on the picture.



Solution: First we will compute the area of right triangle ACD . $AC = 15$ in and $AD = 17$ in.

$$A_{ACD} = \frac{15 \text{ in} \cdot 17 \text{ in}}{2} = \frac{255 \text{ in}^2}{2} = 127.5 \text{ in}^2$$

To get the area of the shaded region, we will subtract the areas of the rectangle $ABFE$ and right triangles DEF and BCF .

$$\begin{aligned} A_{ABFE} &= 7 \text{ in} \cdot 4 \text{ in} = 28 \text{ in}^2 \\ A_{DEF} &= \frac{10 \text{ in} \cdot 4 \text{ in}}{2} = 20 \text{ in}^2 \\ A_{BCF} &= \frac{7 \text{ in} \cdot 11 \text{ in}}{2} = \frac{77 \text{ in}^2}{2} = 38.5 \text{ in}^2 \end{aligned}$$

So the shaded area is when we subtract the white areas from the big right triangle.

$$\begin{aligned} A &= A_{ACD} - (A_{ABFE} + A_{DEF} + A_{BCF}) \\ &= 127.5 \text{ in}^2 - (28 \text{ in}^2 + 20 \text{ in}^2 + 38.5 \text{ in}^2) = 127.5 \text{ in}^2 - 86.5 \text{ in}^2 = 41 \text{ in}^2 \end{aligned}$$