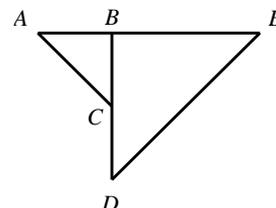


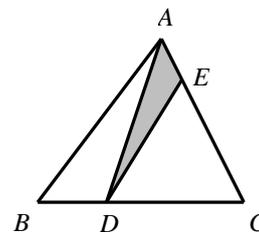
## Geometry Part 1

### Equal height model

1. As shown in the figure, the area of triangle  $ABC$  is 1, where  $AE = 3AB$ ,  $BD = 2BC$ , what is the area of triangle  $BDE$ ?

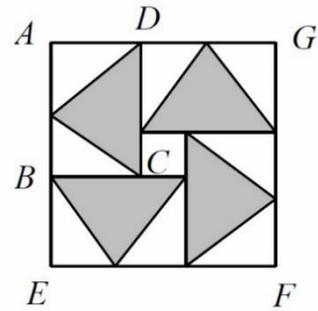


2. As shown in the figure,  $DC = 2BD$ ,  $CE = 3AE$ , the area of triangle  $ADE$  is 20. What is the area of triangle  $ABC$ ?

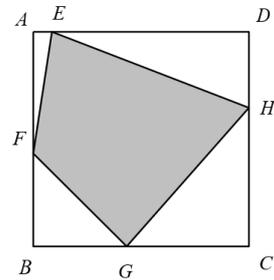


**Half model**

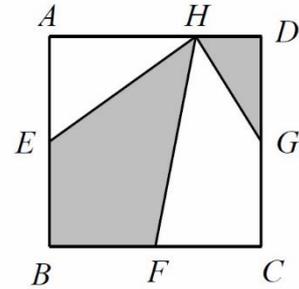
1. As shown in the figure, the length of the small rectangle  $ABCD$  is 2 cm more than the width. Four identical small rectangles are used to form a large square  $AEFG$ . It is known that the area of the large square is 70 square centimetres. Find the area of the shadow in the figure.



2. As shown in the figure,  $AF = 7\text{ cm}$ ,  $DH = 4\text{ cm}$ ,  $BG = 5\text{ cm}$ ,  $AE = 1\text{ cm}$ . If the area of the quadrilateral  $EFGH$  in the square  $ABCD$  is  $78\text{ cm}^2$ , find the side length of the square.

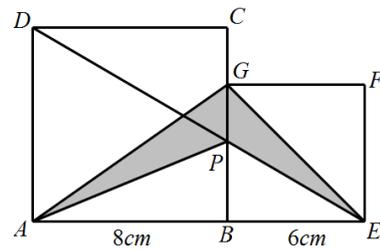


3. As shown in the figure, the area of the square  $ABCD$  is 56 square centimetres, points  $E$ ,  $F$ , and  $G$  are the midpoint on the side of the square  $ABCD$ , and  $H$  is any point on the side of  $AD$ . Given that the area of the triangle  $HDG$  is 9 square centimetres, calculate the area of the quadrilateral  $HEBF$ .

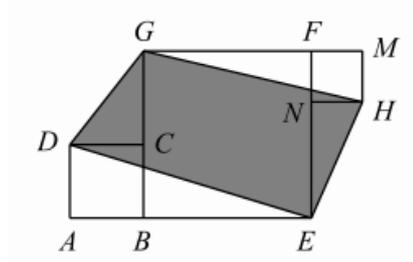


### Equal area with different shapes

1. As shown in the figure, square  $ABCD$  and square  $BEFG$  are arranged side by side.  $DE$  and  $BG$  intersect at  $P$ , what is the area of the shaded part in the figure?



2. Three squares are placed as shown in the figure,  $AB=9$ ,  $BE=21$ ,  $FM=6$ . Find the area of shaded quadrangle.



3. As shown in the figure, the vertices  $D$ ,  $G$  and  $K$  of the three squares are exactly on the same line. The side length of the square  $GFEB$  is 10 cm. Find the area of the shaded part.

