# Geometry, *You Can Do It !*
## Area - irregular & shaded Regions

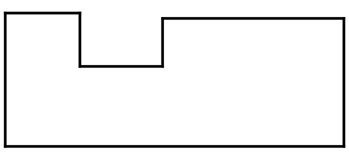
by Bill Hanlon

If you can find areas of polygons like rectangles, triangles, parallelograms, and trapezoids, then finding areas of irregularly shaped figures should not be a big deal.

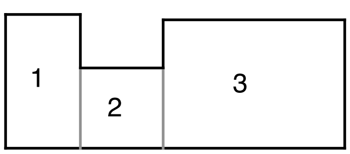
In fact, if you think about it, you have already found areas of irregular polygons. We will use the same method to find irregular shapes that we used in finding the area of a trapezoid.

Remember, we said a trapezoid was made up of two triangles, we found the area of each, then added them together. Piece of cake, right?

Let's take a look at an irregularly shaped polygon.

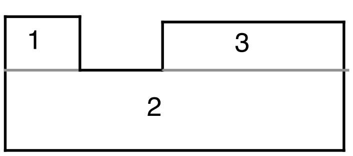


Looking at the picture, we realize that we do not know a formula to find the area. But, we can divide that polygon into shapes we do recognize and have area formulas.



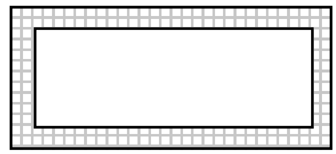

That gives me three rectangles, all of which have an area given by LW. If we add them together, we have the area of the irregular polygon.

Someone else may have divided the region like this.

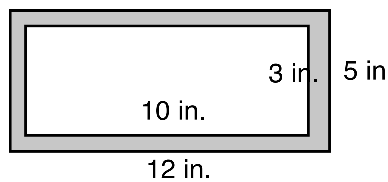



Again, I see the the figure that I did not recognize is made up of polygons that I have area formulas.

Finding the area of a shaded region is pretty straight forward.



The best way to attack this problem is by the finding the area of the larger region, then taking out the area of the smaller region.

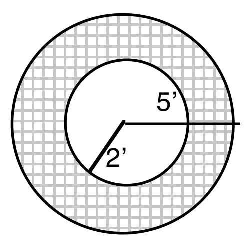



Doing that, the area of the larger rectangle is 60 sq. inches. Taking out the area of the smaller rectangle, I have

Area = 60 sq. in. – 30 sq. in.

= 30 sq. in.

I know, you want to try another one.




Find the area of the shaded region.

The area of the large circle, $\pi r^2$, is $25\pi$ sq.' . The area of the smaller circle is $4\pi$ sq. '.

Taking out the area I don't want, I have

$25\pi$ sq. ' – $4\pi$ sq. '

So the area of the shaded region is $21\pi$ sq.'.