

Area Problems

Odd shapes

To find the area of an irregular shape:

1. Divide the figure up into squares, rectangles, and right triangles.

Area Problems

Odd shapes

To find the area of an irregular shape:

1. Divide the figure up into squares, rectangles, and right triangles.
2. Find the area of each of the shapes that make up the figure.

Area Problems

Odd shapes

To find the area of an irregular shape:

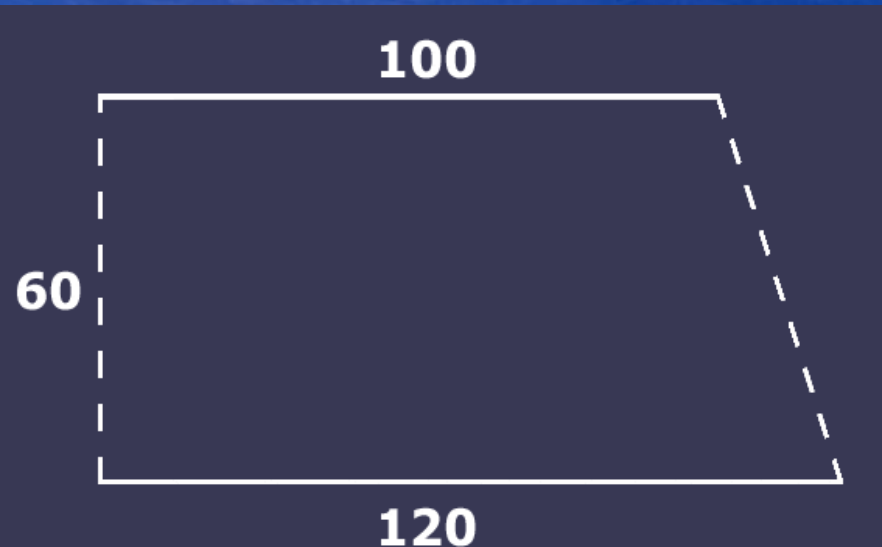
1. Divide the figure up into squares, rectangles, and right triangles.
2. Find the area of each of the shapes that make up the figure.
3. Add the areas together.

Odd Shapes

Example

The lot's western side is 60 feet long. Its northern side is 100 feet long, but its southern side is 120 feet long.

To find the area of this lot, break it into a rectangle and a triangle.



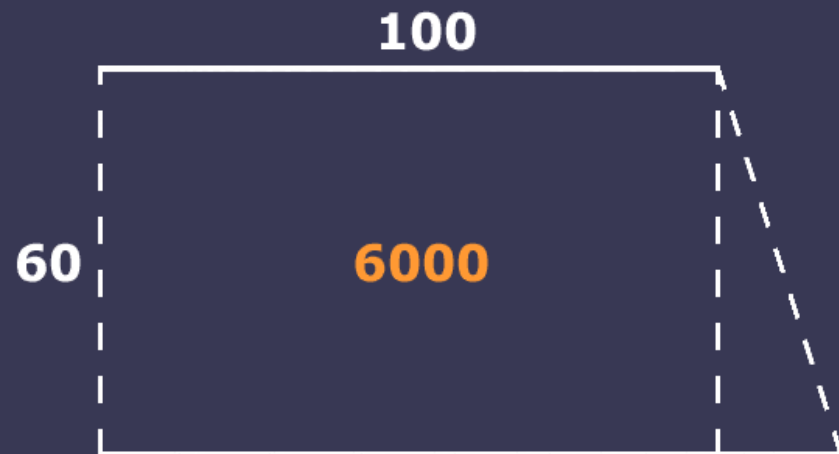
Odd Shapes

Example, continued

Area of rectangle

$$A = 60 \times 100$$

$$A = 6,000 \text{ sq. feet}$$



Odd Shapes

Example, continued

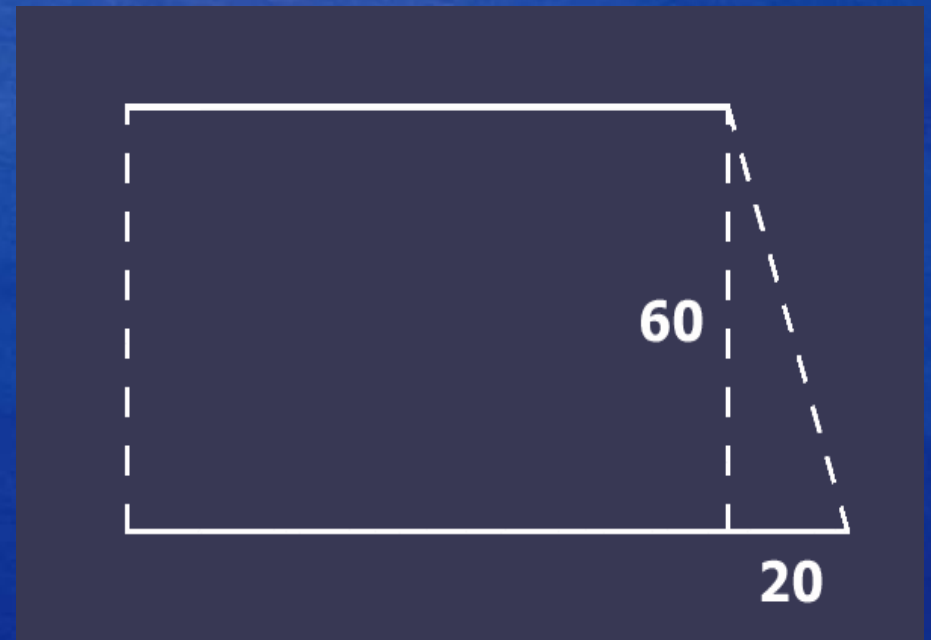
To find the length of the triangle's base, subtract length of northern boundary from length of southern boundary.

$$120 - 100 = 20 \text{ feet}$$

Area of triangle:

$$A = (\frac{1}{2} \times 20) \times 60$$

$$A = 600 \text{ sq. feet}$$



Odd Shapes

Example, continued

Total area:

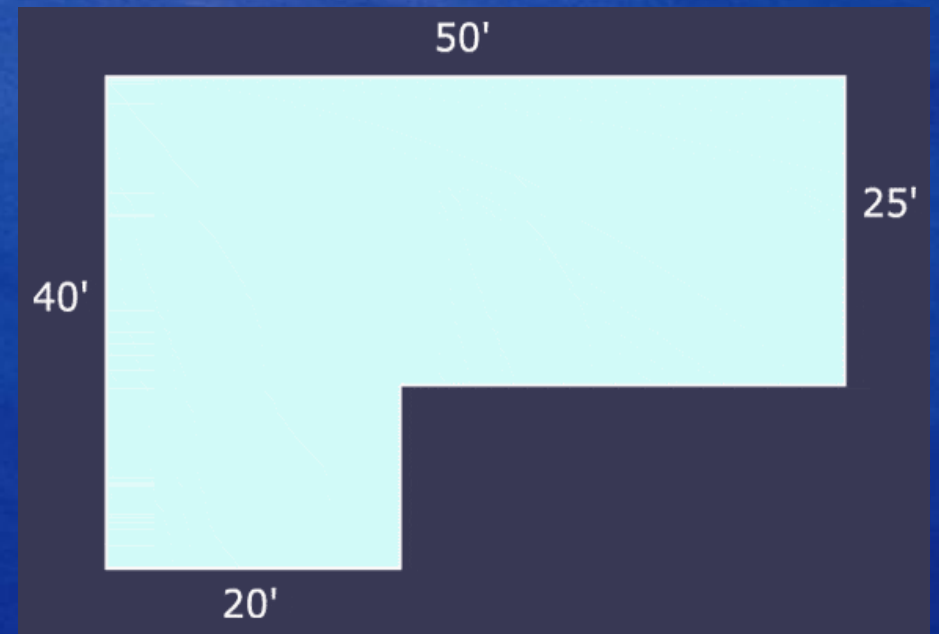
$$6,000 + 600 =$$
$$6,600 \text{ sq. feet}$$



Odd Shapes

Avoid counting same section twice

- ▶ A common mistake when working with odd shapes is to calculate the area of part of the figure twice. This can happen with a figure like this one.



Odd Shapes

Avoid counting same section twice

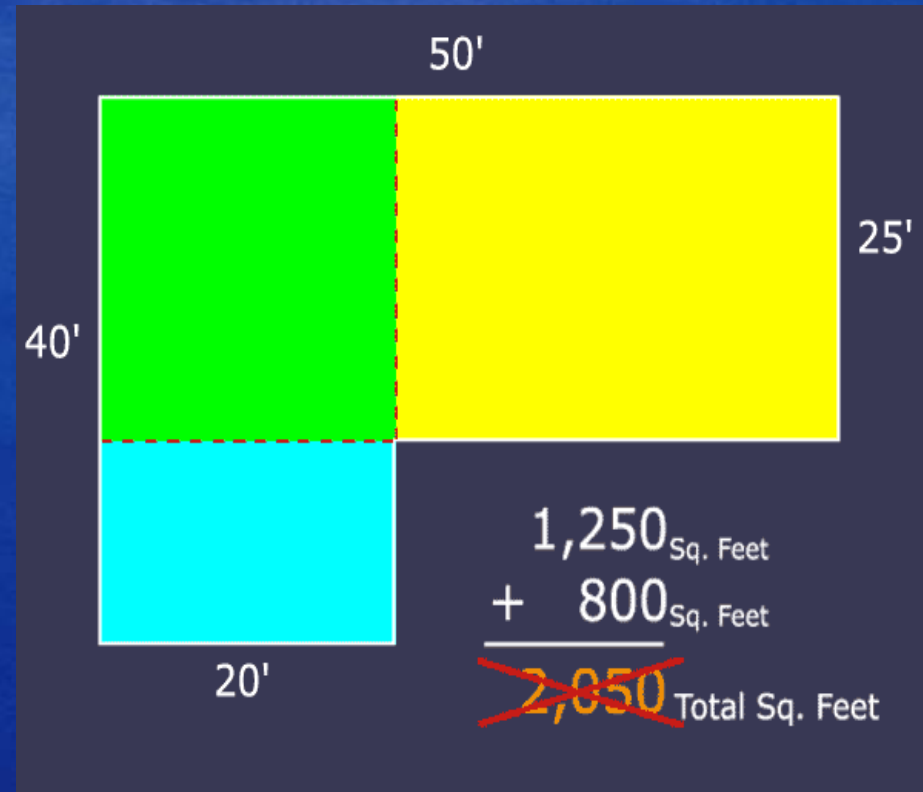
Here's the wrong way to calculate the area of this lot.

$$25 \times 50 = 1,250$$

$$40 \times 20 = 800$$

$$1,250 + 800 = 2,050$$

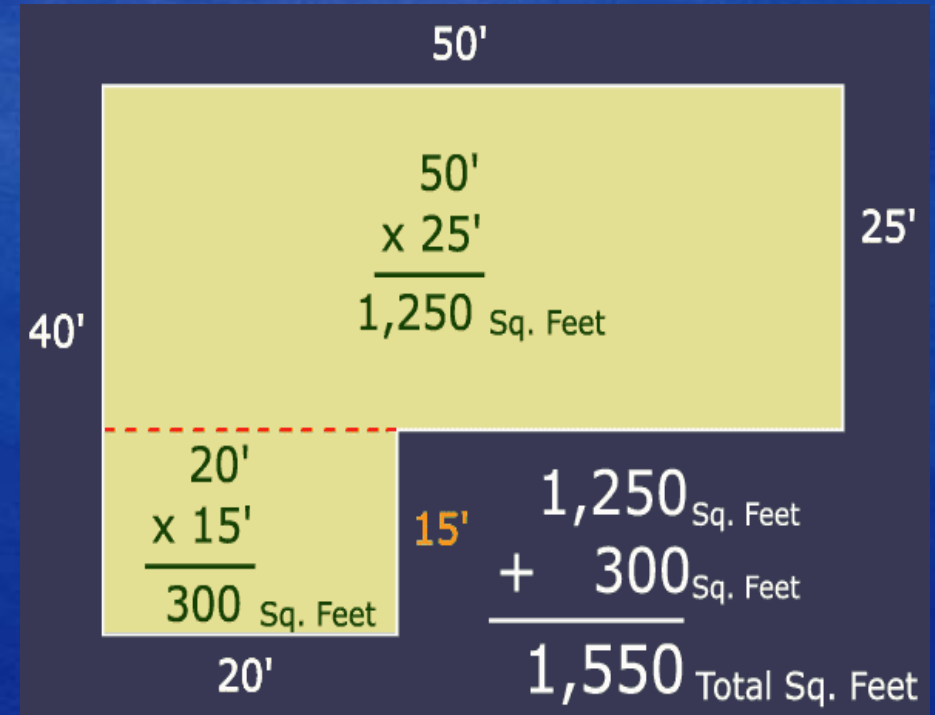
By doing it this way, you measure the middle of the shape twice.



Odd Shapes

Avoid counting same section twice

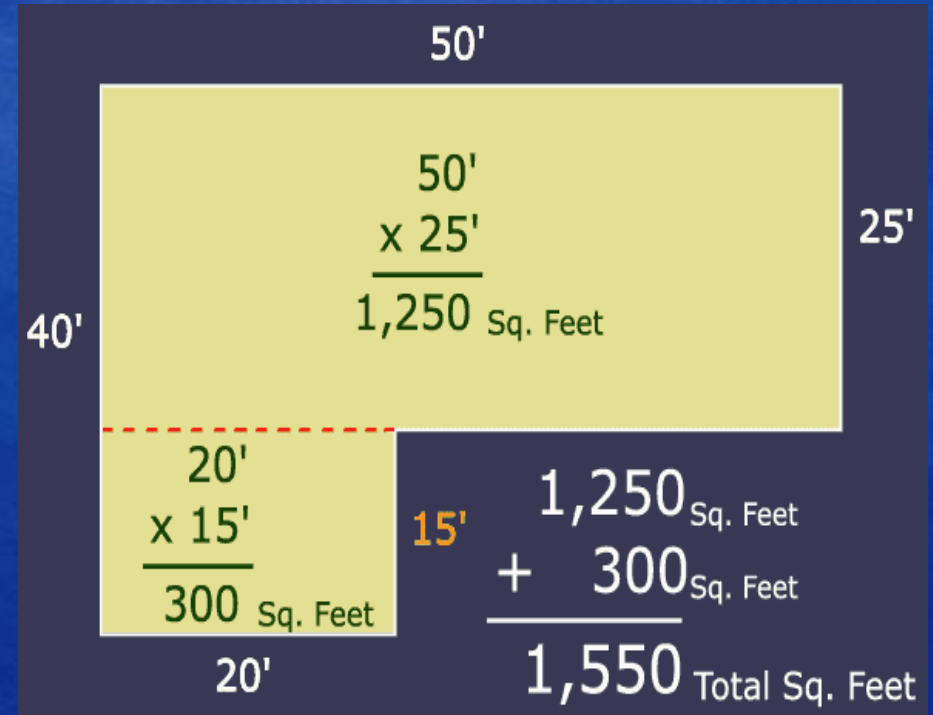
- ▶ Avoid the problem by breaking the shape down like this instead.



Odd Shapes

Avoid counting same section twice

- ▶ Avoid the problem by breaking the shape down like this instead.
- ▶ Find height of smaller rectangle by subtracting height of top rectangle (25 feet) from height of the whole shape (40 feet).

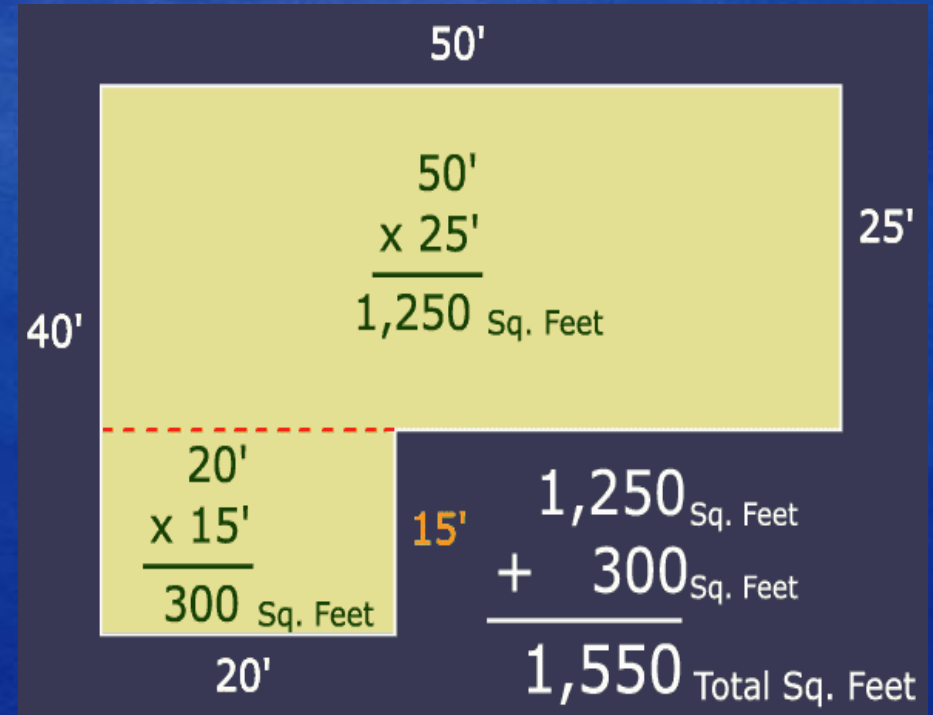


Odd Shapes

Avoid counting same section twice

- ▶ Avoid the problem by breaking the shape down like this instead.
- ▶ Find height of smaller rectangle by subtracting height of top rectangle (25 feet) from height of the whole shape (40 feet).

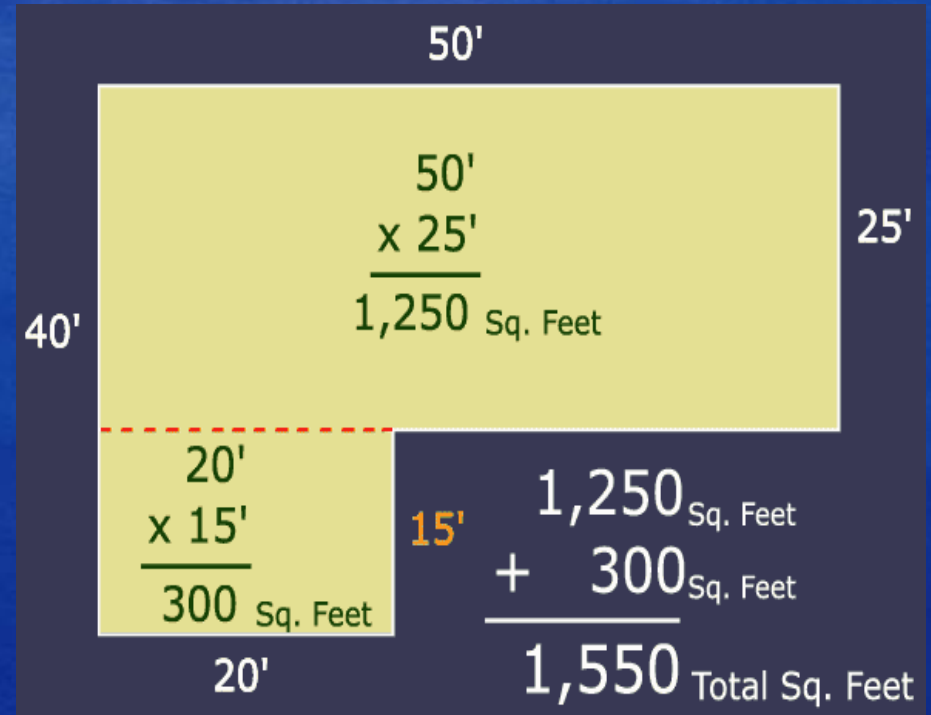
$$40 - 25 = 15 \text{ feet}$$



Odd Shapes

Avoid counting same section twice

Now calculate the area of each rectangle and add them together:



Odd Shapes

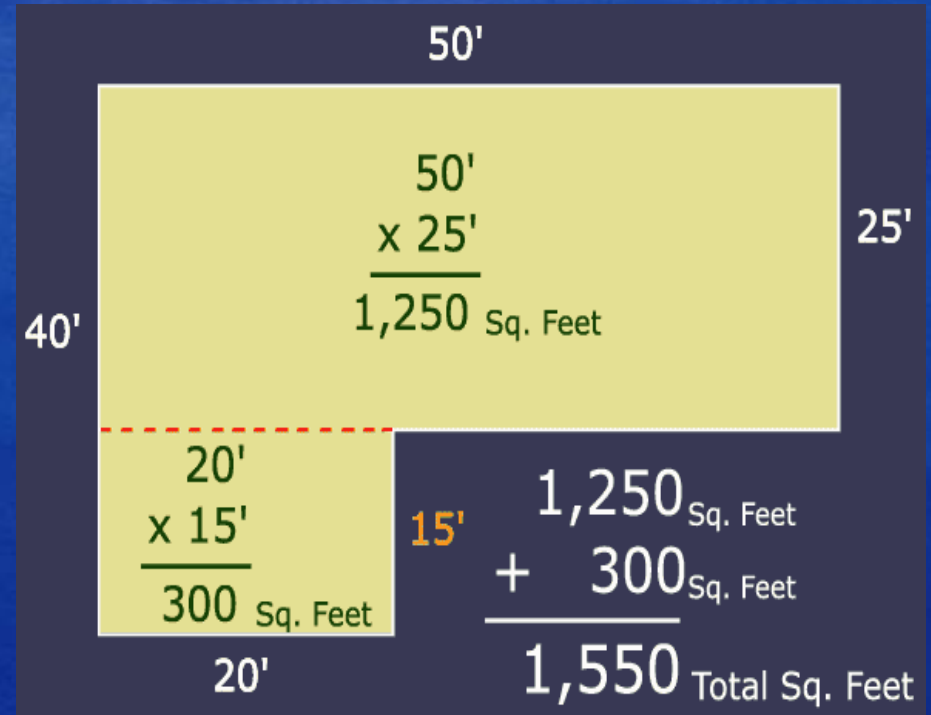
Avoid counting same section twice

Now calculate
the area of each
rectangle and add
them together:

$$25 \times 50 = 1,250 \text{ sq. ft.}$$

$$20 \times 15 = 300 \text{ sq. ft.}$$

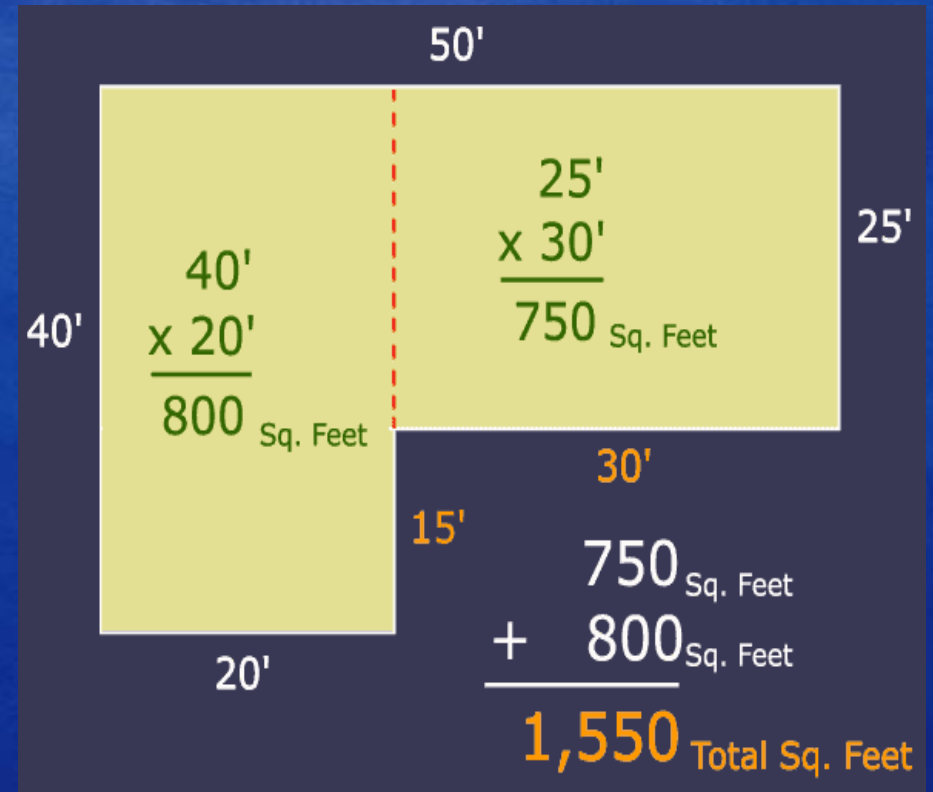
$$1,250 + 300 = 1,550 \text{ sq. ft.}$$



Odd Shapes

Avoid counting same section twice

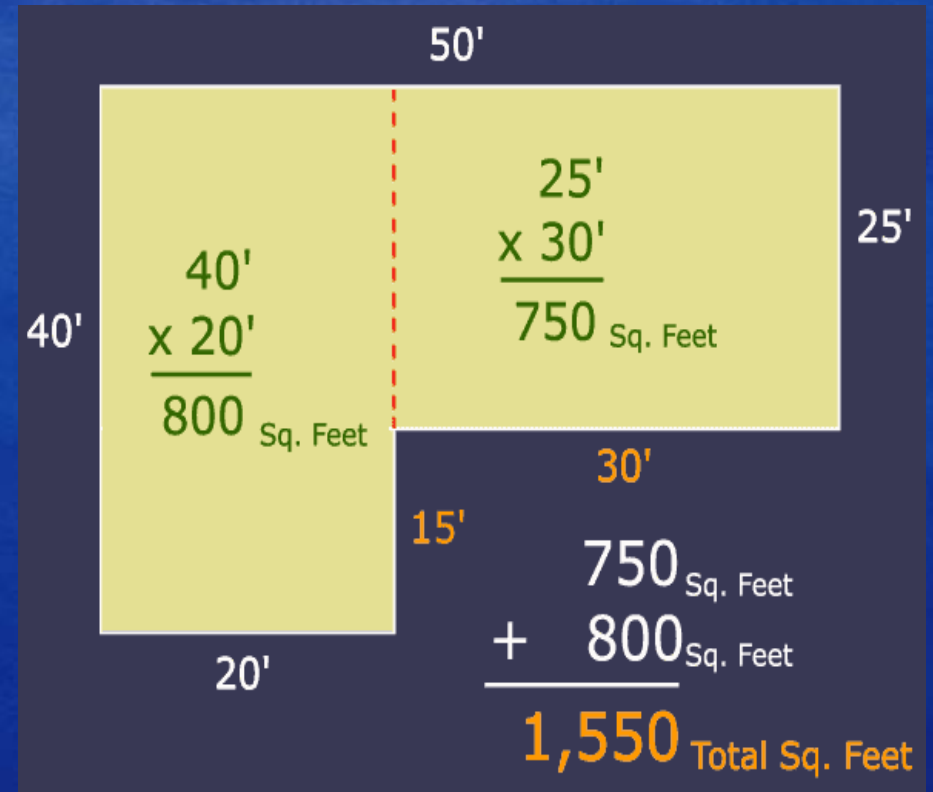
- Here's another way to break the odd shape down into rectangles correctly.



Odd Shapes

Avoid counting same section twice

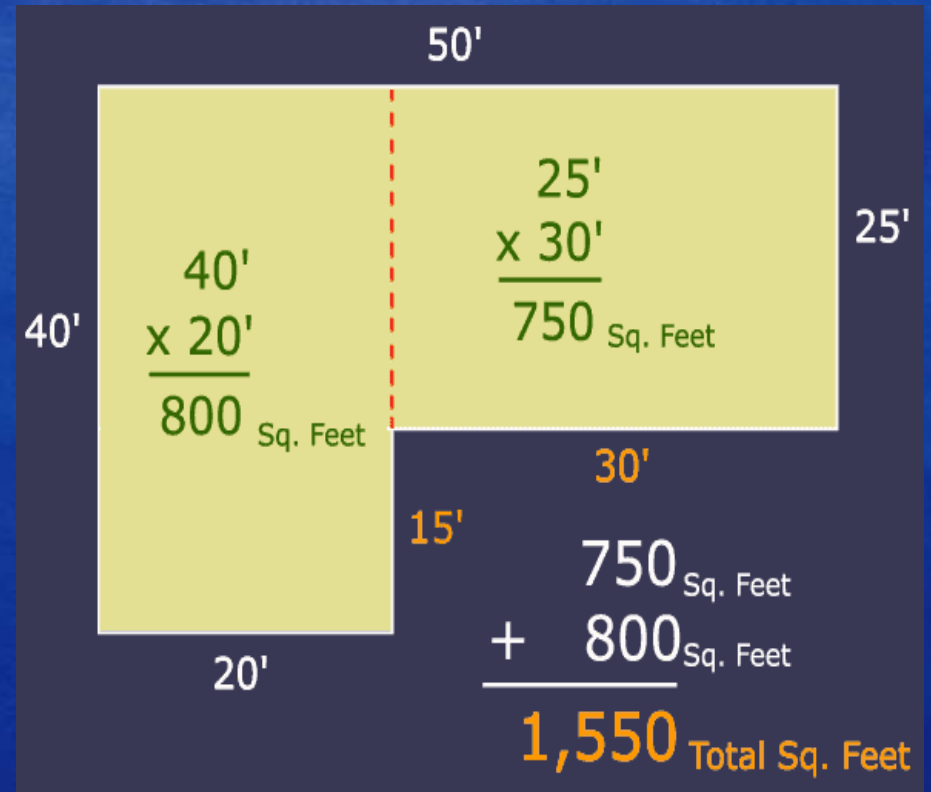
- Here's another way to break the odd shape down into rectangles correctly.
- To find width of the rectangle on the right, subtract width of left rectangle from width of whole shape:
 $50 - 20 = 30$ feet



Odd Shapes

Avoid counting same section twice

Now calculate the area of each rectangle and add them together:



Odd Shapes

Avoid counting same section twice

Now calculate the area of each rectangle and add them together:

$$40 \times 20 = 800 \text{ sq. ft.}$$

$$30 \times 25 = 750 \text{ sq. ft.}$$

$$800 + 750 = 1,550 \text{ sq. ft.}$$

