

## Unit 3

### Imperial Area Measurements

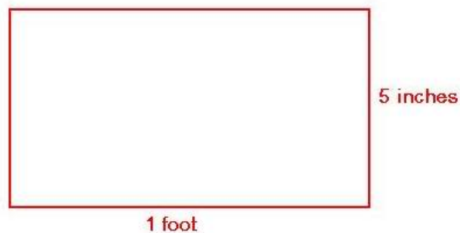
Dec 12-10:49 AM

**Area** is the amount of surface a 2D shape covers.

It is measured or worked out in a square unit (ie.  $\text{cm}^2$ , square feet, etc.)

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How is area different from perimeter?



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### Estimating Area Using Referents

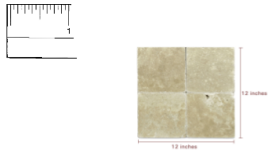
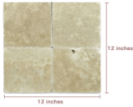
Find a personal referent for:

- 1 square inch.
- 1 square foot.
- the area of the index card (in inches).
- the area of a sheet of loose leaf (in inches).

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**Estimating Area Using Referents**

Find a personal referent for:

- a) 1 square inch. 
- b) 1 square foot. 
- c) the area of the index card (in inches).  
*approx. 15 sq inches.*
- d) the area of a sheet of loose leaf (in inches).  
*approx. 90 sq inches.*

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Using your personal referents, estimate the area of the following (in inches):

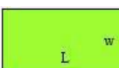

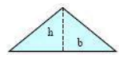

- a) The top of your desk 
- b) A poster on the wall 
- c) A cinder block 
- d) The smart board 
- e) The door 

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**Using Formulas to Find Area**

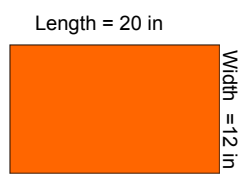
Many shapes have formulas that we can use to find its area.

For example:

- a) rectangle   $A = L \times w$
- b) square   $A = l^2$
- c) triangle   $A = \frac{b \times h}{2}$
- d) circle   $A = \pi r^2$

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**Area of a Rectangle**



- $A = LW$
- Area = Length X Width

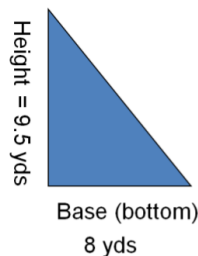
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Area of a Square

6 feet

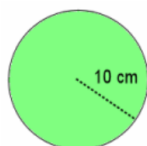
- $A = s^2$
- $A = \text{side} \times \text{side}$

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Area of Triangle

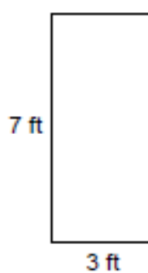
- $A = \frac{1}{2}bh$
- $A = \frac{1}{2} \cdot b \cdot h$

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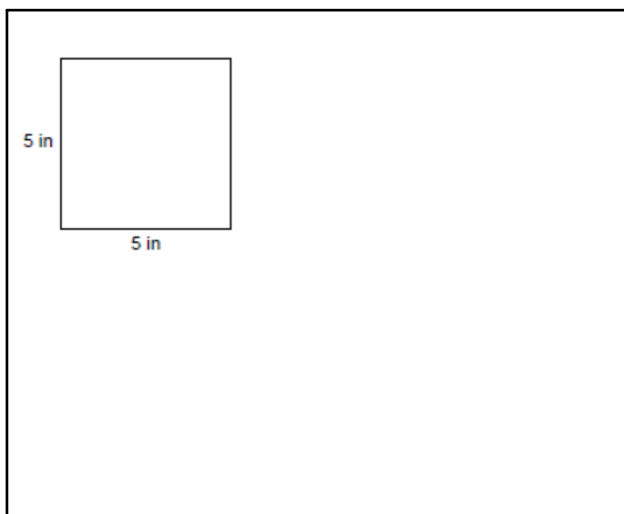
Area of a Circle

$$A = \pi r^2$$

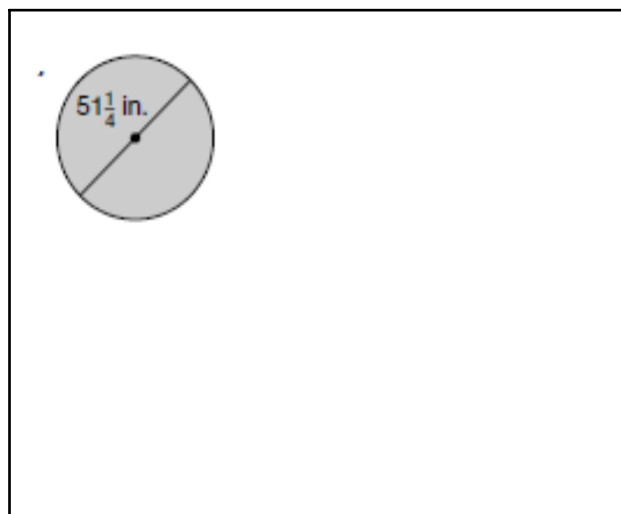
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Dec 13-8:30 AM



Dec 13-2:21 PM

A large window has a length of 8 feet and a width of 6 feet. What is its area?

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A rectangular piece of paper has a width of 16 inches and an area of 192 square inches. What is its length?

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A chessboard has an area of 100 square inches. What is its perimeter?

The length and the width of a rectangle are 15 ft and 12 ft respectively. If the length is decreased by 4 and the width is decreased by 3, how is the area changed?

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Can two rectangles have the same perimeter but different areas?

Which of the figures has the same perimeter but a different area compared to Figure 1?



Figure 1

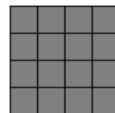


Figure 2



Figure 3



Figure 4



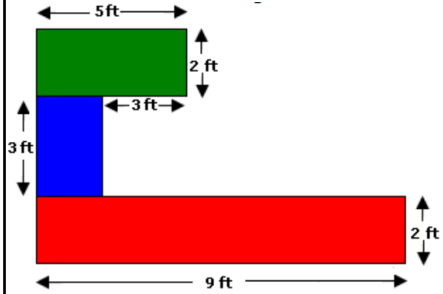
Figure 5

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A corn field is in the form of a rectangle with length 14 yards and width 11 yards. Find the area of the field.

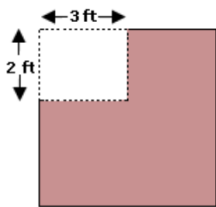
Find the area of the figure.



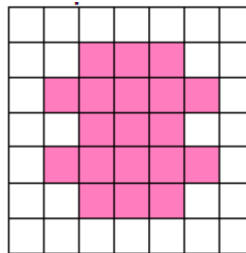
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A square cardboard with a side of 6 ft was cut as shown. Find the area of the left over piece of the cardboard, which is shaded.

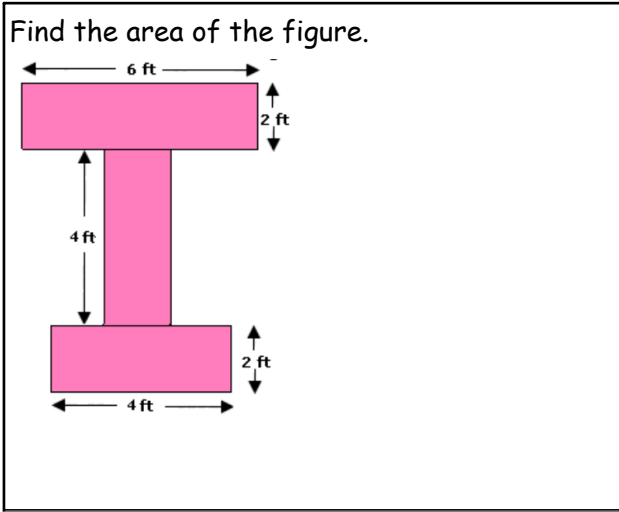


Find the area of the shaded region, if the area of each square is 2 square units.

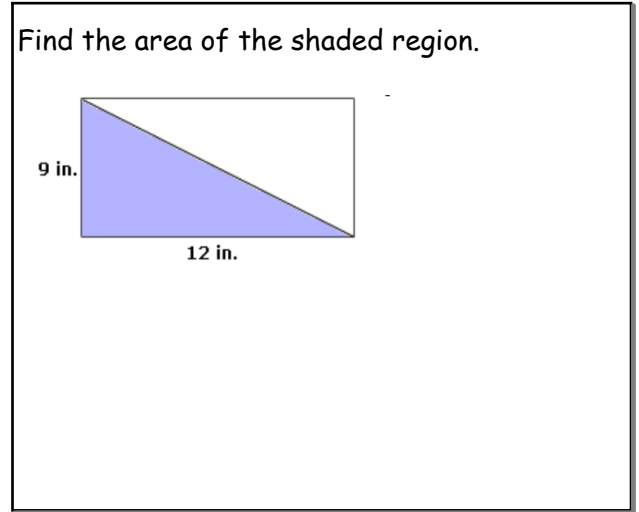


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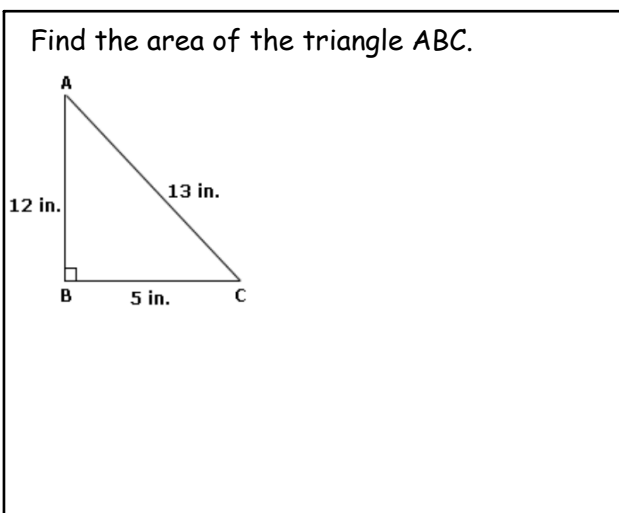
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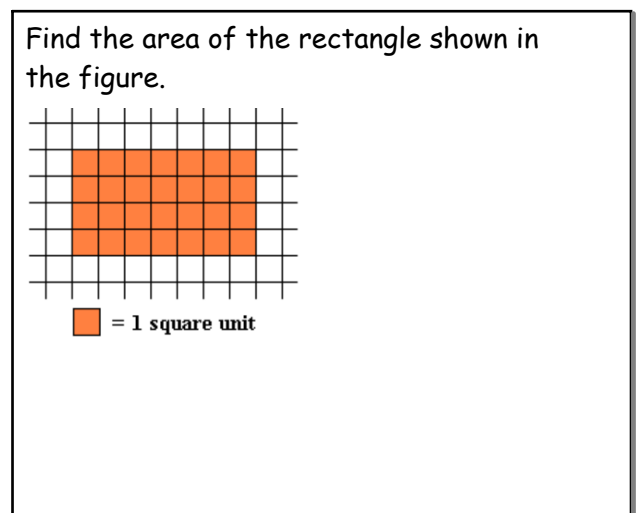
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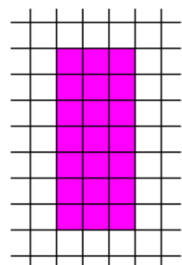



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Dec 13-2:44 PM

Find the area of the rectangle shown in the figure.



 = 4 square units

Find the area of Martin's drawing room, if it is 8 ft long and 9 ft wide.

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Dec 13-2:52 PM

John's living room is in the shape of a square of side 20 ft. He wants to cover half of the living room with a carpet. Find the area of the carpet required.

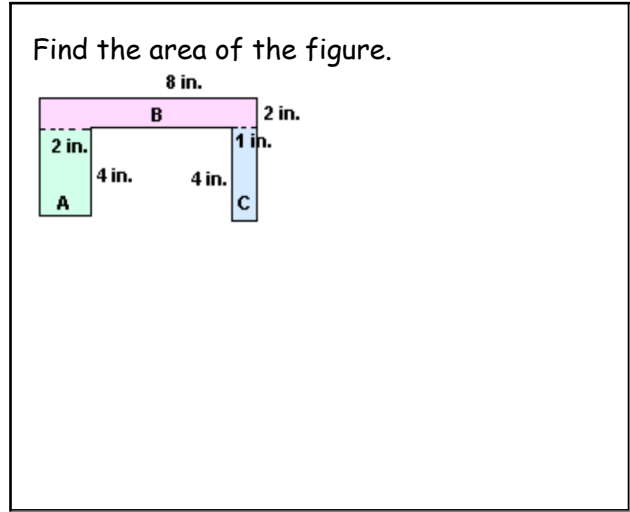
The length and the width of a rectangle are 10 cm and 8 cm respectively. If the length is decreased by 4 and the width is decreased by 3, how is the area changed?

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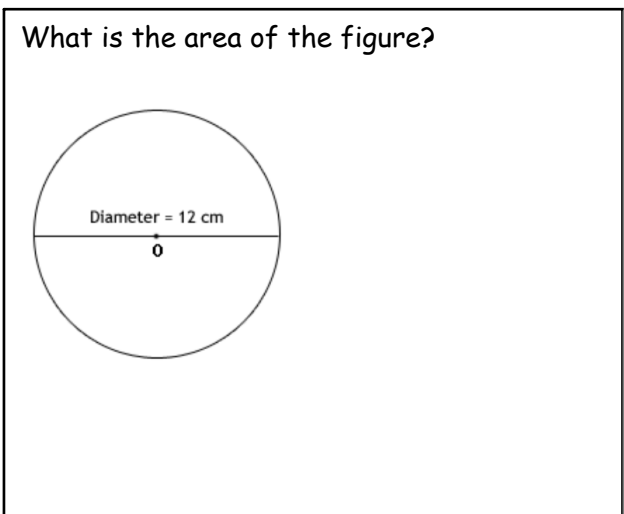
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The length and the width of a rectangle are 12 cm and 10 cm respectively. If the length is increased by 3 and the width is increased by 2, how is the area changed?

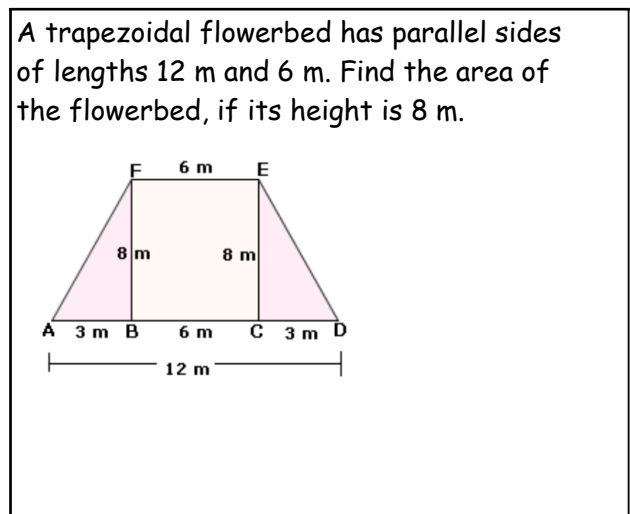
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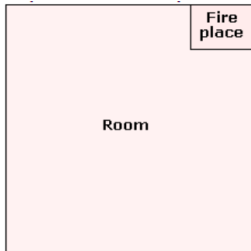


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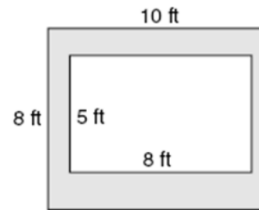
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Charlie's room is square shaped and is 20 ft in length. The room has a fireplace which is 5 ft. long and 4 ft. wide. He wants to carpet the floor, except the fireplace. Find the area to be carpeted.



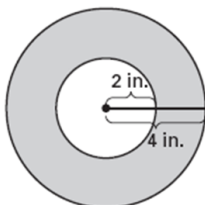
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What is the area of the shaded region?



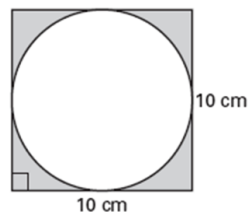
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What is the area of the shaded region?



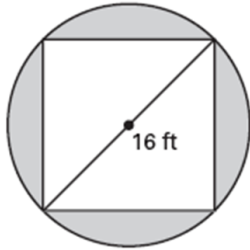
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What is the area of the shaded region?



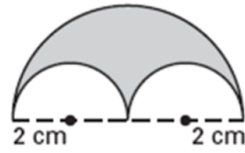
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What is the area of the shaded region?



Dec 13-3:02 PM

What is the area of the shaded region?



Dec 13-3:02 PM

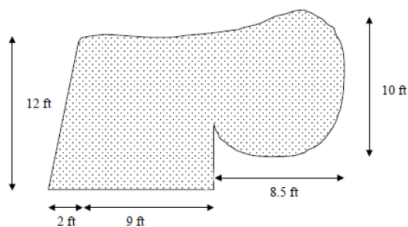
What is the area of the shaded region?

A rectangular flowerbed on a commercial property measures 15 feet by 32 feet. What is the area of the plot?

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Dec 13-3:03 PM

Estimate the area of the plot of land shown in the figure below.



Kristen spills milk all over a closed math book whose front cover is 13 inches tall and 9 inches wide. What is the area of the milk covering the front of her math book?

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Adrian wants to carpet two rectangular bedrooms. One bedroom measures 12 ft by 16 ft. The other measures 10 ft by 12 ft. How much carpet does Adrian need to buy?

Dec 13-8:53 AM