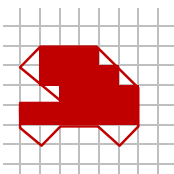


Lesson 9-6

Objective – To approximate the area of irregular shapes using a grid.



First: Count the full squares.

17 full squares.

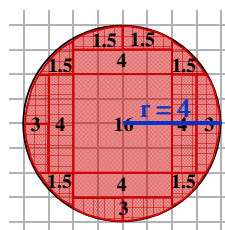
Second: Count the half squares.

9 half squares.

Third: Calculate the total number of full squares.

$$\text{Area} = \text{Full} + \frac{1}{2} \cdot \text{Half} = 17 + \frac{1}{2} \cdot 9 = 21.5 \text{ un}^2$$

Estimate the area of the circle using the centimeter grid below, then find the area using $\pi \approx 3.14$.



Formula

$$A = \pi \cdot r^2$$

$$A = \pi \cdot (4)^2$$

$$A = \pi \cdot 16$$

$$A \approx (3.14) \cdot 16$$

$$A \approx 50.24 \text{ cm}^2$$

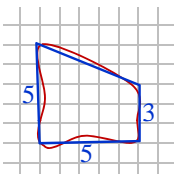
Estimate

$$\text{Area} \approx 16 + 4(4) + 4(1.5) + 4(3)$$

$$\text{Area} \approx 16 + 16 + 6 + 12 \approx 50 \text{ cm}^2$$

Close!

Use formulas to approximate the area of the irregular shape below.



Resembles a trapezoid

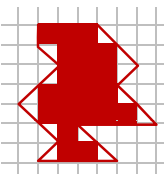
$$A = \frac{1}{2}(b_1 + b_2) \cdot h$$

$$A = \frac{1}{2}(5 + 3) \cdot 5$$

$$A = \frac{1}{2}(8) \cdot 5 = 4 \cdot 5 = 20 \text{ un}^2$$

$$\text{Irregular Shape} \approx 20 \text{ un}^2$$

Find the area of the irregular figure below.



First: Count the full squares.

21 full squares.

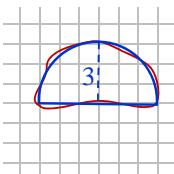
Second: Count the half squares.

13 half squares.

Third: Calculate the total number of full squares.

$$\text{Area} = \text{Full} + \frac{1}{2} \cdot \text{Half} = 21 + \frac{1}{2} \cdot 13 = 27.5 \text{ un}^2$$

Use formulas to approximate the area of the irregular shape below.



Resembles a semi-circle

$$A = \frac{1}{2}(\pi \cdot r^2)$$

$$A \approx \frac{1}{2}(3.14 \cdot 3^2)$$

$$A \approx \frac{1}{2}(3.14 \cdot 9) \approx 14.13 \text{ un}^2$$

$$\text{Irregular Shape} \approx 14.13 \text{ un}^2$$