

11.1 Understanding Area

Definition of Area: The area of a closed region is the number of square units of space within the boundary of the region.

Important formulas:

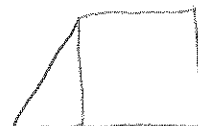
Area of a square: $A_{sq} = s^2$ The area of a square is equal to the square of a side.

Area of a rectangle: $A_{rect} = bh$ The area of a rectangle is equal to the product of the base and the height for that base.

Perimeter of a square or rectangle: $P = 2l + 2w$

Basic properties of Area:

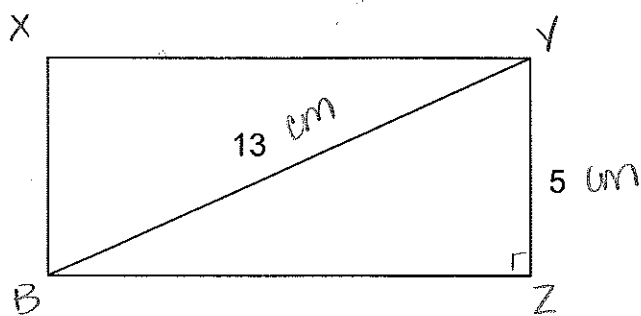
- 1) Every closed region has an area
- 2) If two closed figures are congruent, then their areas are equal
- 3) If two closed regions intersect only along a common boundary, then the area of their union is equal to the sum of their individual areas.



Examples:

- 1) Find the area of the rectangle

$$A = bh$$



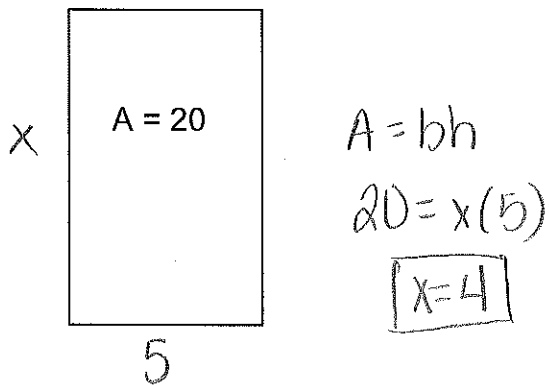
$$BZ = 12$$

$$A = 12(5)$$

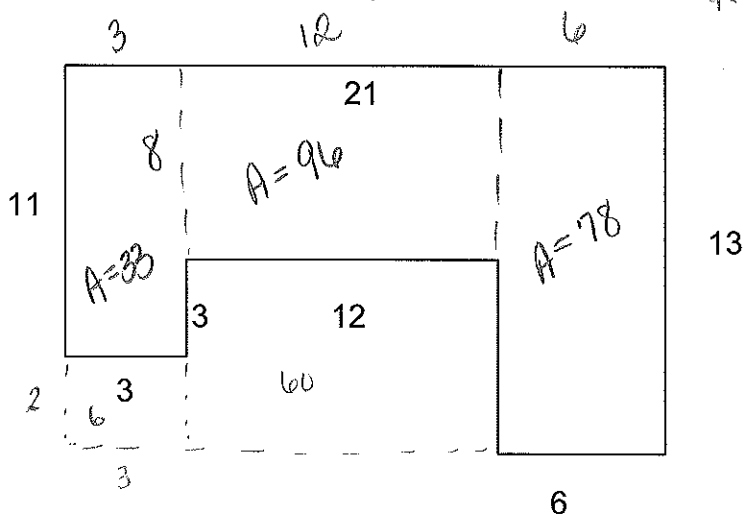
$$A = 60 \text{ sq cm}$$

Examples continued:

- 2) Given that the area of a rectangle is 20, and the altitude is 5, find the base.



- 3) Find the area of the shaded region.



* Use addition or subtraction method

$$78 + 96 + 33 = \boxed{207}$$

$$273 - 66 = \boxed{207}$$