

T-G Geometry 10/4 Week 5

## Distance and Midpoint Formulas

$$\begin{matrix} X & X \\ (-2, 6) & (3, -6) \end{matrix}$$

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$\begin{aligned} d &= \sqrt{(-2 - 3)^2 + (-6 - 6)^2} \\ &= \sqrt{(-5)^2 + (-12)^2} \\ &= \sqrt{25 + 144} \\ &= \sqrt{169} = \boxed{13} \end{aligned}$$

$$\begin{aligned} \text{Midpoint: } & \left( \frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2} \right) \\ & \left( \frac{3 + (-2)}{2}, \frac{6 + (-6)}{2} \right) \\ & \boxed{\left( \frac{1}{2}, 0 \right)} \end{aligned}$$

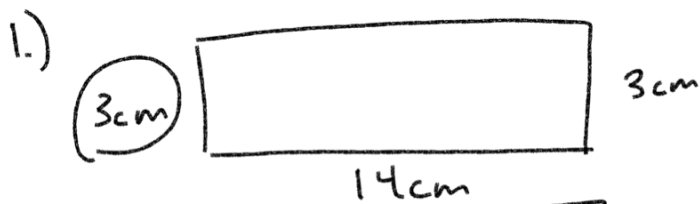
$$\begin{array}{c} \sqrt{80} \\ \swarrow \quad \searrow \\ \sqrt{4} \quad \sqrt{20} \\ \quad \swarrow \quad \searrow \\ \quad \sqrt{4} \quad \sqrt{5} \end{array}$$

Look for perfect squares  
~~1, 4, 9, 16, 25, 36, 49, 64, 81, 100...~~

$$\begin{aligned} \sqrt{80} &= \sqrt{4} \cdot \sqrt{4} \cdot \sqrt{5} \\ &= 2 \cdot 2 \cdot \sqrt{5} = \boxed{4\sqrt{5}} \end{aligned}$$

$$\begin{array}{c} \sqrt{80} \\ \swarrow \quad \searrow \\ \sqrt{16} \quad \sqrt{5} \end{array}$$

$$\begin{aligned} \sqrt{80} &= \sqrt{16} \cdot \sqrt{5} \\ &= \boxed{4\sqrt{5}} \end{aligned}$$

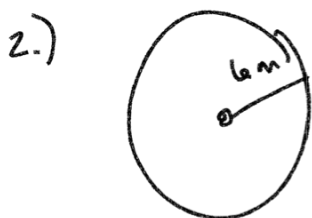


Find  
Area:  $A = L \times H = \boxed{42 \text{ cm}^2}$

Perimeter:  $P = 2L + 2H$

$P = 2(14 \text{ cm}) + 2(3 \text{ cm})$   
 $28 \text{ cm} + 6 \text{ cm} = \boxed{34 \text{ cm}}$

$A = (3 \text{ cm})(14 \text{ cm}) = \boxed{42 \text{ cm}^2}$



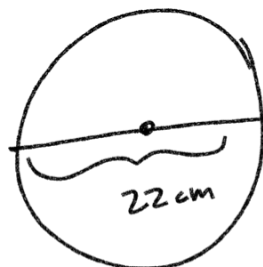
A:

C:

$A = \pi r^2$   
 $= \pi (6 \text{ m})^2$   
 $= \boxed{36\pi \text{ m}^2}$

$C = 2\pi r$   
 $= 2\pi (6 \text{ m})$   
 $= \boxed{12\pi \text{ m}}$

3.)



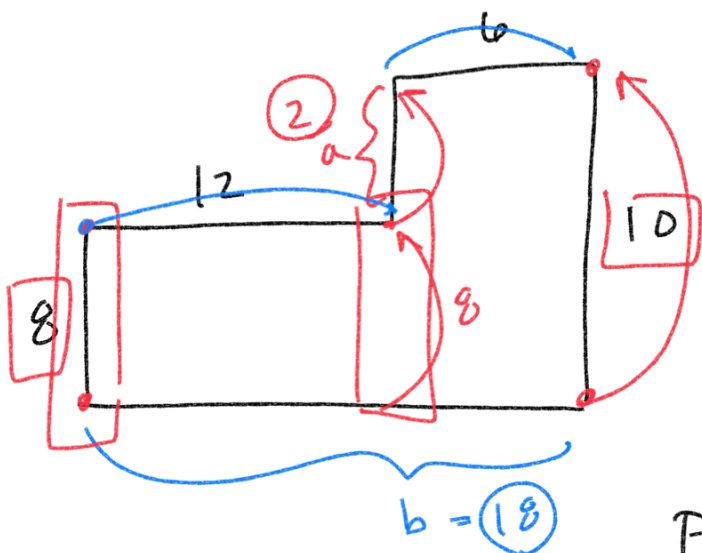
A:

C:

$C = \pi d$        $A = \pi \left(\frac{d}{2}\right)^2$   
 $= \pi (22 \text{ cm})$        $\pi \left(\frac{22}{2}\right)^2$

$\boxed{22\pi \text{ cm}}$

$\pi (11)^2$   
 $\boxed{121\pi \text{ cm}^2}$



Perimeter

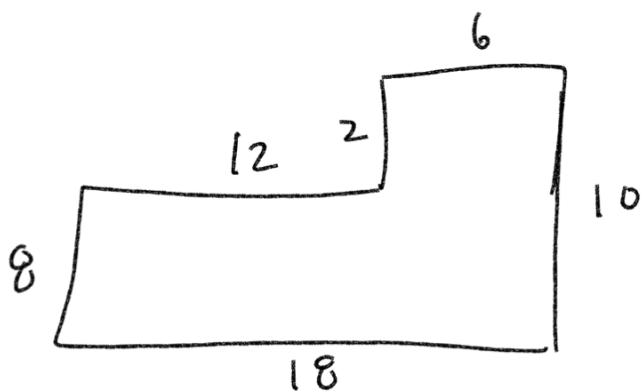
$10 - 8 = 2$

$b = 12 + 6$

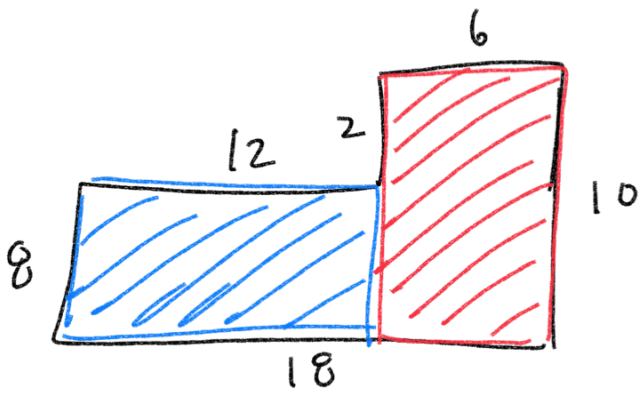
$b = 18$

$P: 18 + 8 + 12 + 6 + 10 + 2$

$\boxed{56 \text{ units}}$



Area = Either sum  
of two figures  
or  
the subtraction of two.



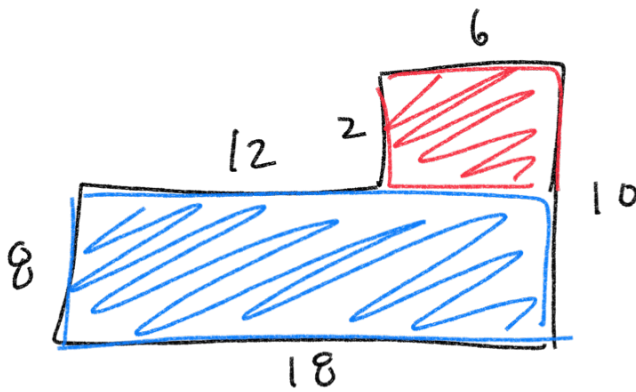
Red

Blue

$$10 * 6$$

$$8 * 12$$

$$60 + 96 = 156 \text{ units}^2$$



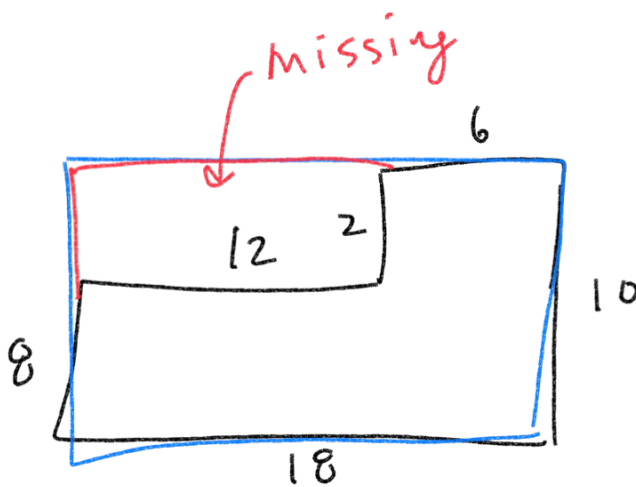
Red

Blue

$$6 * 2$$

$$18 * 8$$

$$12 + 144 = 156 \text{ units}^2$$



Whole

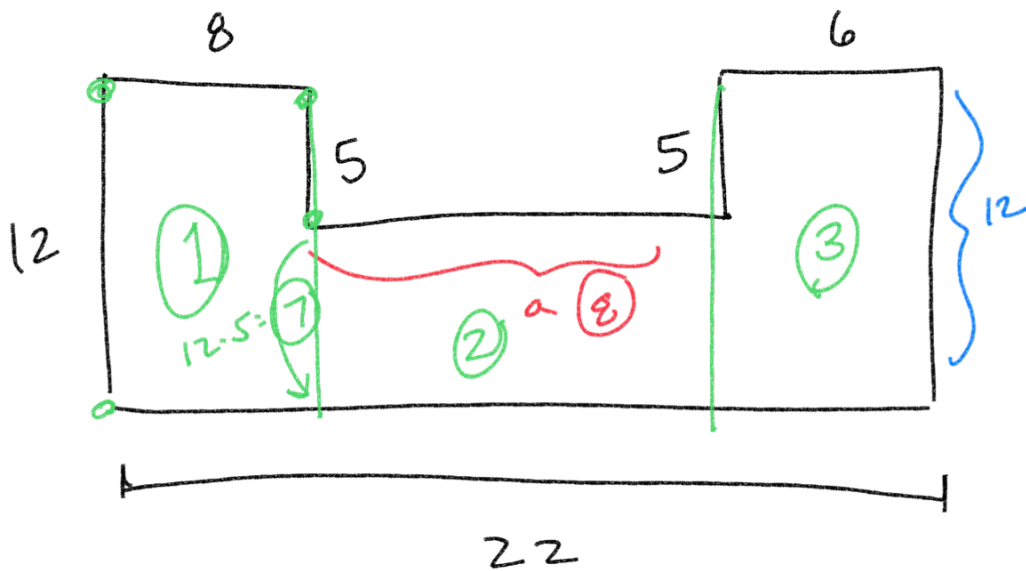
$$18 * 10 = 180$$

missing

$$12 * 2 = 24$$

Whole - missing

$$180 - 24 = 156 \text{ units}^2$$



Not drawn to scale!

Find Perimeter

Area

$$22 - (8 + 6)$$

$$22 - 14 = 8$$

$$\text{Perimeter} = 22 + 12 + 8 + 5 + 8 + 5 + 6 + 12 =$$

78 units

WHOLE - MISSING

$$(22 \times 12) - (8 \times 5)$$

$$264 - 40 =$$

224 units<sup>2</sup>

Area 1:  $12 \times 8 = 96$

2:  $8 \times 7 = 56$

3:  $12 \times 6 = 72$

224 units<sup>2</sup>