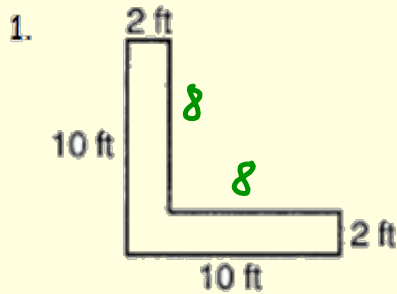


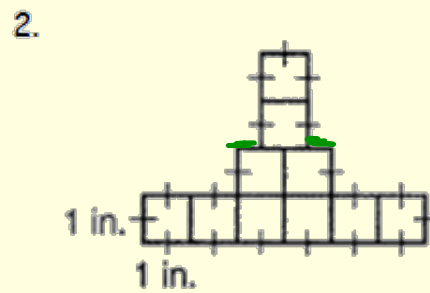
## 13.3 Prior Learning: Area and Perimeter

## Finding Perimeter

The perimeter of a shape is the distance around the shape. It's often just adding up all the sides, but it can get a bit tricky...



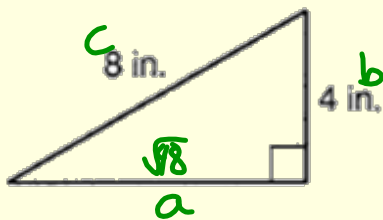
$$P = 10 + 10 + 2 + 8 + 8 + 2$$
$$P = 40 \text{ ft.}$$



$$P = 20 \text{ in.}$$

### Finding Perimeter

3.



$$a^2 + b^2 = c^2$$

$$a^2 + 4^2 = 8^2$$

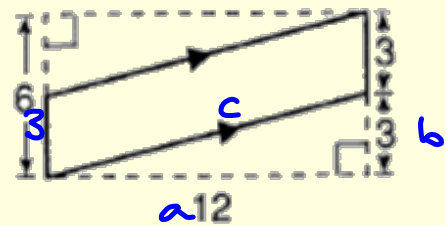
$$\sqrt{a^2} = \sqrt{48}$$

$$a = \sqrt{48}$$

$$P = 8 + 4 + \sqrt{48}$$

$$P = 18.93 \text{ in.}$$

4.



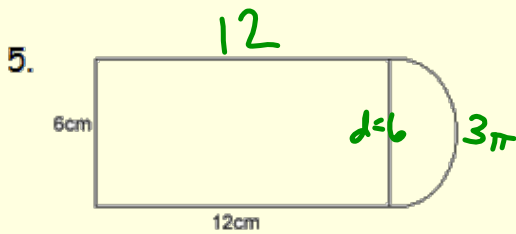
$$12^2 + 3^2 = c^2$$

$$\sqrt{153} = c$$

$$P = 3 + 3 + \sqrt{153} + \sqrt{153}$$

$$P = 30.74 \text{ units}$$

### Finding Perimeter

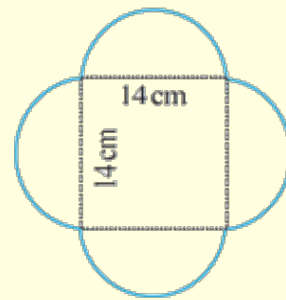


$$\frac{1}{2}C = \frac{2\pi r}{2} = \pi r$$

$$\frac{1}{2}C = \pi(3) = 3\pi$$

$$P = 12 + 6 + 12 + 3\pi = 39.42 \text{ cm}$$

6.



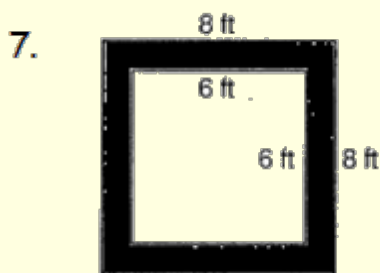
$$\frac{1}{2}C = \pi r = \pi(7) = 7\pi$$

$$P = 4(7\pi) = 28\pi$$

$$\approx 87.96 \text{ cm}$$

## Finding Area

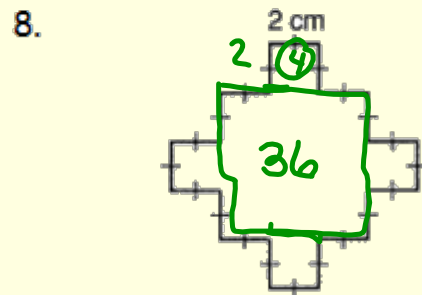
The area of a shape is number of square units inside the shape. As with finding perimeter, it can get a bit tricky...



$$A_{\text{g}} = 8 \times 8 = 64$$

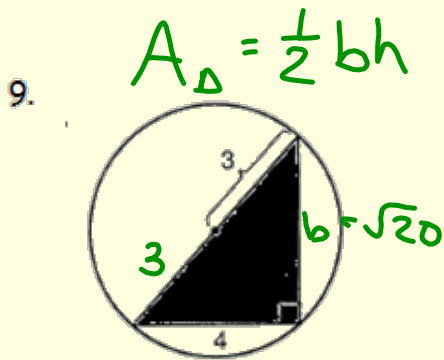
$$A_{\text{sm}} = 6 \times 6 = 36$$

$$\text{Area} = 64 - 36 = 28 \text{ ft}^2$$



$$A = 4(13) = 52 \text{ cm}^2$$

### Finding Area



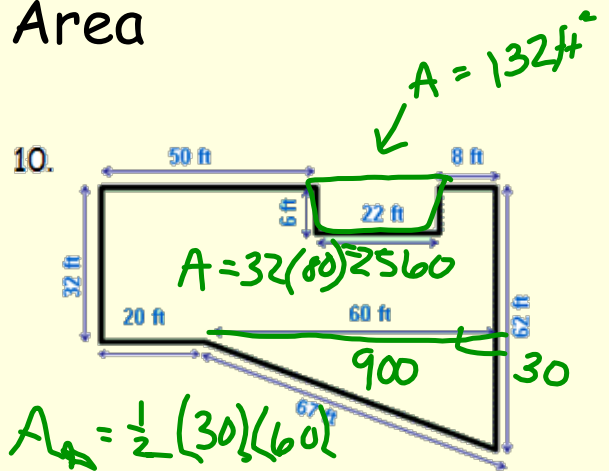
$$A_{\Delta} = \frac{1}{2}bh$$

$$4^2 + b^2 = 6^2$$

$$b^2 = 20$$

$$b = \sqrt{20}$$

$$A = \frac{1}{2}(4)(\sqrt{20}) = 8.94 \text{ units}^2$$



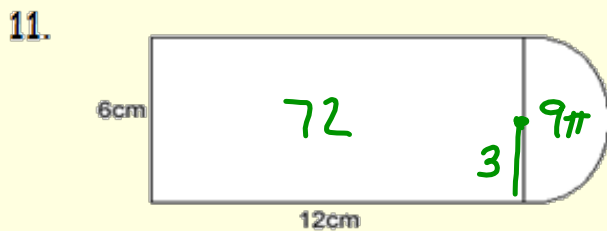
$$A = 32(80) = 2560$$

$$A_{\Delta} = \frac{1}{2}(30)(60) = 900 \text{ ft}^2$$

$$A_{\Delta} = 2560 - 132 = 2428 \text{ ft}^2$$

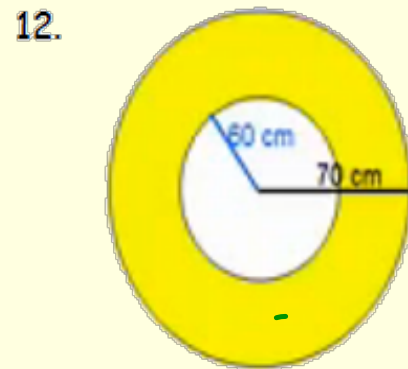
$$A_{\text{total}} = 3328 \text{ ft}^2$$

$A_o = \pi r^2$  Finding Area

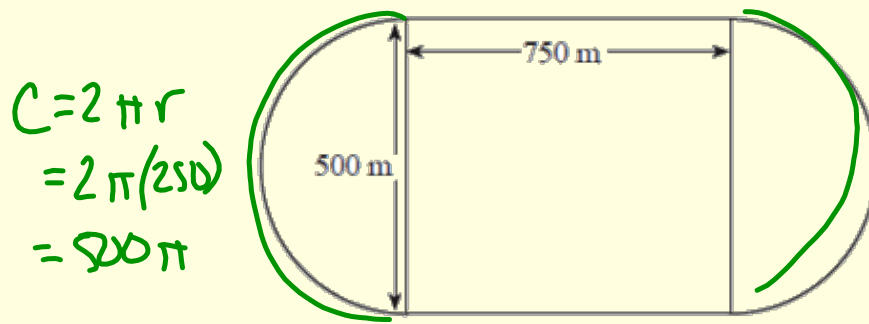


$$A_{\frac{1}{2}o} = \pi (3)^2$$
$$= \pi (9) = \frac{9\pi}{2} = 4.5\pi$$

$$A = 72 + \frac{9\pi}{2} = 86.14 \text{ cm}^2$$



14. A race track is made up of a rectangular shape 750 m by 500 m with semi-circles at each end as shown in the diagram.



Michael drives around the track once at an average speed of 140 km/h.

- a) Calculate the distance that Michael travels. [2 marks]

$$P = 750 + 750 + 250\pi + 250\pi$$
$$= 3070.8 \text{ m}$$



b) Calculate how long Michael takes in seconds. [4 marks]

$$P = d = 3070.8 \text{ m} = 3.0708 \text{ km}$$

$$r = 140 \text{ km/hr.}$$

$$d = r t$$

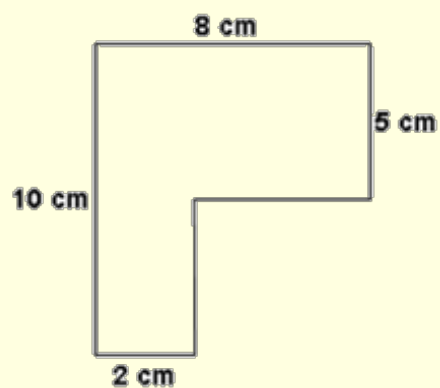
$$3.0708 = (140) t$$

$$0.021934 \text{ hr} = t$$

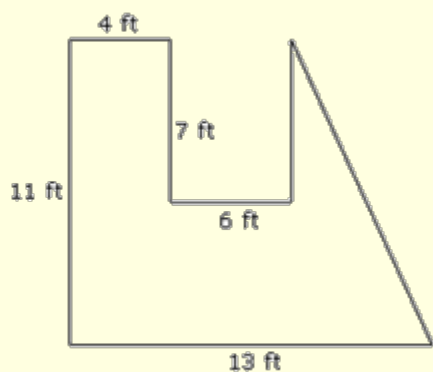
× 360 sec.

$$t = 79.0 \text{ sec.}$$

13. Find the perimeter and area of these two figures.  
Include the correct units in each answer.



13. Find the perimeter and area of these two figures.  
Include the correct units in each answer.



**Homework:**

Complete WS 13.3.4/5 (1-12 all)