3.1 Systems of Measurement

Name: key

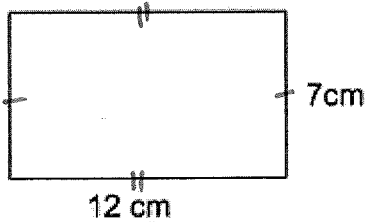**Investigate:**

What is perimeter?

Sum of the lengths of all sides of a polygon (add)

perimeter = 1 + 2 + 3 = 6

What is the perimeter of this figure? What assumptions do you have to make?

Must assume parallel lines are the same length

7cm

12 cm

$P: 7 + 7 + 12 + 12 = 38cm$
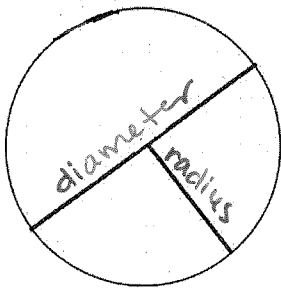
or

$P = 2(7+12) = 2(19) = 38 \, cm$

What is the distance around a circle called?

Circumference

Label the diameter and the radius of the circle. Calculate the distance around the circle. $C = 2\pi r$
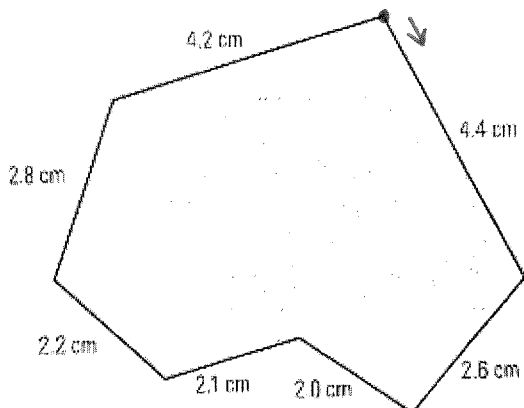
$r = 2.4cm$

diameter radius

$C = 2\pi r$
$= 2\pi (2.4)$
$= 15.1cm$

Examples:

Ex 1. What is the perimeter of this figure?

4.2 cm

4.4 cm

2.8 cm

2.2 cm

2.1 cm   2.0 cm   2.6 cm

$P = 4.4 + 2.6 + 2.0 + 2.1 + 2.2 + 2.8 + 4.2$
$= 20.3 \, cm$

Ex 2. The sides of the flower garden shown below are 4m long. Each end is a semi-circle with a diameter of 2m. What is the perimeter of the flower garden?
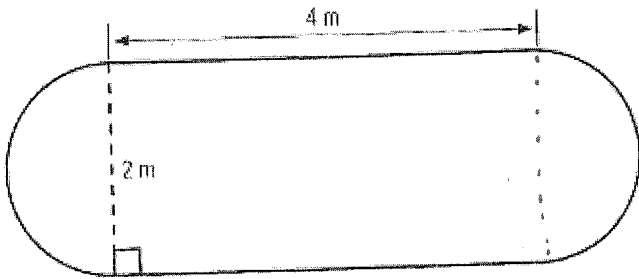
$$P_0 = c = \pi d$$
$$= \pi (2)$$
$$= 6.28m$$

$$P = 6.28 + 4 + 4 = \boxed{14.28m}$$

Ex 3. Wilhelmina, a seamstress, is sewing bridesmaids' dresses. Each dress requires $3\frac{3}{4}$ yards of silk and $1\frac{1}{2}$ yards of lace fabric. How much of each type of material does Wilhelmina need to make 5 dresses?

$$3\frac{3}{4} = 3.75 \qquad \text{silk}: 3.75 \times 5 = \boxed{18.75yd}$$

$$1\frac{1}{2} = 1.5 \qquad \text{lace}: 1.5 \times 5 = \boxed{7.5yd}$$

Ex 4. Fatima is trying to calculate how much baseboard she will need for the room shown below. What is the minimum amount of baseboard she will need?
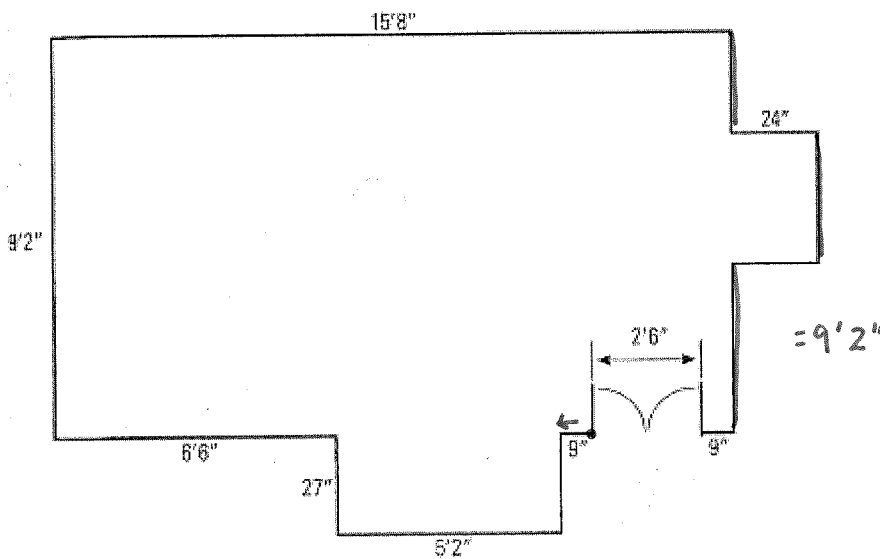
ft	inches
	9
5	2
	27
	27
6	6
9	2
15	8
24	
24	
9	
9	2
—	—
44'	140"

convert inches → feet

$$140" = \underline{\quad}'$$

$$140" \times \frac{1'}{12"} = 11.\overline{6}$$

$$11 \times 12 = 132$$

$$140 - 132 = 8$$

$$11' 8"$$

$$11' 8" + 44' = \boxed{55' 8"}$$