

1) BEDMAS:  $16 - 2 \times 7 = 16 - 14 = 2$

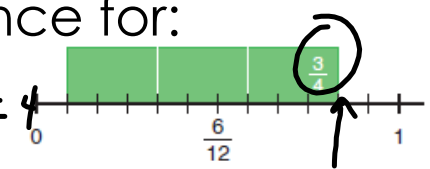
2)  $0.5 \times 16 = 8$

3) 50% of 42 = 21



4) Write a subtraction sentence for:

5) 1/3 of 12 = 4  $\frac{1}{3} \times 12 = \frac{12}{3} = 4$



6) 20% of 45  $\frac{1}{5} \times 45 = \frac{45}{5} = 9$

$\frac{10}{12} - \frac{3}{4}$

7) Change to a Mixed Fraction:

$\frac{16}{4} = 4$

20% of 15  
 $\frac{1}{5}$  of 15

$\frac{15}{5} = 3$

8)  $13 \times 20 = 260$

9)  $4004 \div 4 = 1001$

10) What is a common denominator for 2 and 8?

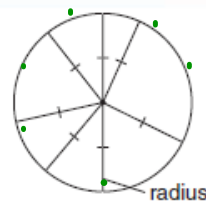
LCM  
8, 4, 16, 24

## 4.1

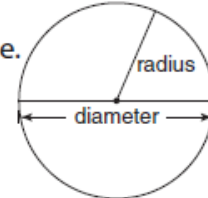
## Investigating Circles

**Focus** Measure radius and diameter and discover their relationship.

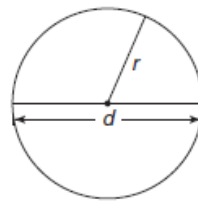
All points on a circle are the same distance from the centre of the circle.  
This distance is the radius of the circle.



The longest line segment in any circle is the **diameter** of the circle.  
The diameter passes through the centre of the circle.  
The radius is one-half the length of the diameter.  
The diameter is two times the length of the radius.




Let  $r$  represent the radius, and  $d$  the diameter.  
 Then the relationship between the radius and diameter of a circle is:  
 $r = d \div 2$ , which can be written as  $r = \frac{d}{2}$   
 And,  $d = 2r$

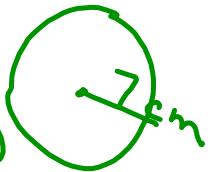


The plural of *radius* is *radii*; that is, one radius, two or more radii.

$r = \text{radius}$

$d = \text{diameter}$

$$\begin{aligned} r &= d \div 2 \\ &= 12\text{m} \div 2 \\ &= 6\text{m} \end{aligned}$$


$$\begin{aligned} d &= 2r \\ &= 2(7\text{cm}) \\ &= 14\text{cm} \end{aligned}$$


$2 \times 7\text{cm}$

Drawing a circle with a compass:

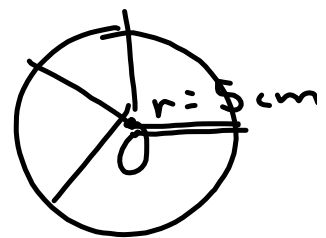
### Example

Use a compass. Construct a circle with:

- a) radius 5 cm      b) diameter 10 cm

What do you notice about the circles you constructed?

- a) Draw a line segment with length 5 cm.  
Place the compass point at one end.  
Place the pencil point at the other end.  
Draw a circle.
- b) Draw a line segment with length 10 cm.  
Use a ruler to find its midpoint.  
Place the compass point at the midpoint.  
Place the pencil point at one end of the segment.  
Draw a circle.



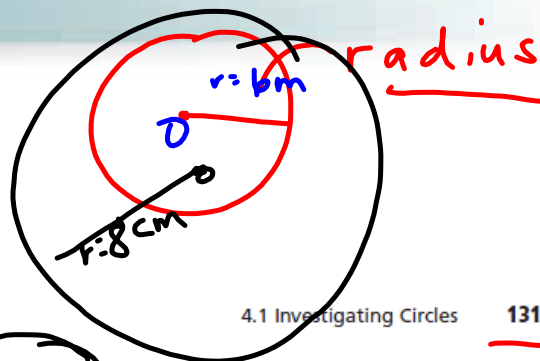
The two circles are congruent. — means that shapes are identical  
A circle with radius 5 cm has diameter 10 cm.

Recall that congruent shapes are identical.

$$r = d \div 2 \quad d = 2r$$

**Practice**

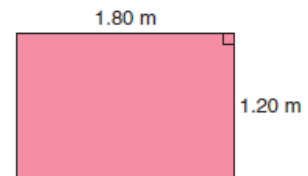
- Use a compass.  
 Draw a circle with each radius.  
 a) 6 cm                      b) 8 cm  
 Label the radius, then find the diameter.



$$\begin{aligned}
 d &= 2r \\
 &= 2(6\text{cm}) \\
 &= 12\text{cm}
 \end{aligned}$$

132  
 p  
 q. 2, 3, 4, 6

2. Draw a circle with each radius without using a compass.  
a) 7 cm                      b) 4 cm  
Label the radius, then find the diameter.  
Explain the method you used to draw the circles.  
What are the disadvantages of not using a compass?
3. a) A circle has diameter 3.8 cm. What is the radius?  
b) A circle has radius 7.5 cm. What is the diameter?
4. A circular tabletop is to be cut from a rectangular piece of wood that measures 1.20 m by 1.80 m.  
What is the radius of the largest tabletop that could be cut?  
Justify your answer. Include a sketch.



6. A glass has a circular base with radius 3.5 cm.  
 A rectangular tray has dimensions 40 cm by 25 cm.  
 How many glasses will fit on the tray?  
 What assumptions did you make?

7. **Assessment Focus** Your teacher will give you a large copy of this logo. Find the radius and diameter of each circle in this logo. Show your work.



This is the logo for the Aboriginal Health Department of the Vancouver Island Health Authority.