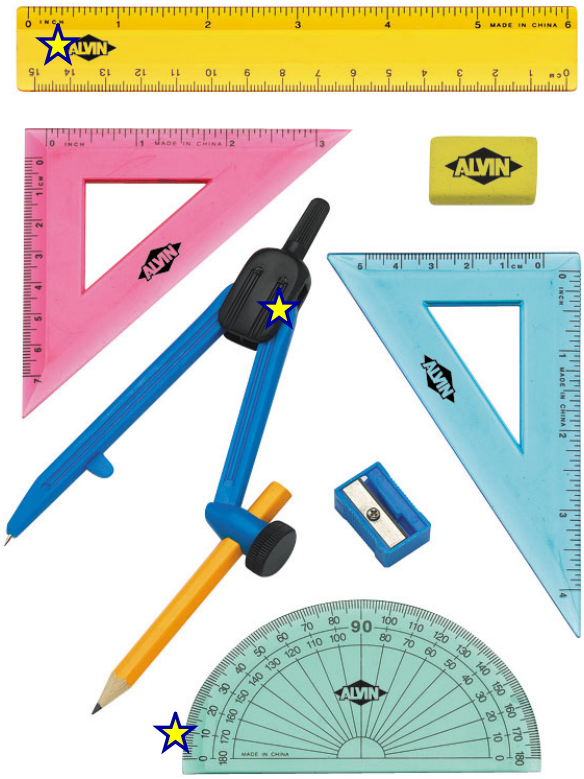
Unit 4

Circles & Area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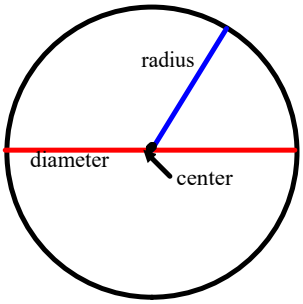
Circles

A circle is a shape where all points are the same distance(or equidistant) from the center.
From the math dictionary - A circle is a round flat two-dimensional shape where all points on the circumference are the same distance from the center.

The longest line through a circle, must pass through the center of the circle, this is the diameter of the circle.

The distance from the center of the circle to the outside of the circle is called the radius.

The circumference is the distance around (or perimeter) of the circle.



There is an infinite (unlimited number) of diameters and radii (plural for radius) that can be drawn.

What is the relationship between the radius and the diameter?

Study

The diameter is 2 times the radius - $d = 2r$

or

The radius is half the diameter - $r = \frac{d}{2}$ $r = \frac{1}{2}d$

Example 1)

Use a compass. Construct a circle with

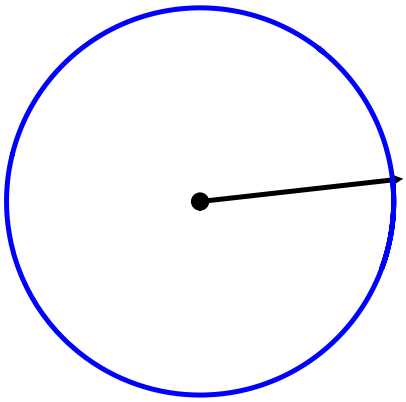
a) radius 3 cm

b) Find the length of the diameter.

$d = 2 \times r$

$d = 2 \times 3\ cm$

$= 6\ cm$



Example 2)

Use a compass. Construct a circle with

a) Diameter 10 cm

b) Find the length of the radius.

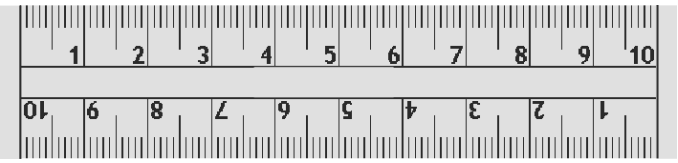
Step 1) Draw a line with the ruler that is 10 cm long

Step 2) Find the midpoint using the ruler (Half way poir

Step 3) Put compass on the midpoint and pencil at the the line segment and draw a circle

OR

Find radius first and do it like Example 1



Class / Homework

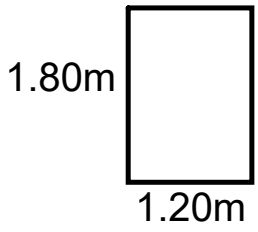
1) Sketch a circle with the following (you don't have a compass home just draw a circle freehand and LABEL the radius and diameter)

a) radius 6 cm b) 8 cm

2) a circle has a diameter of 3.8 cm. What is the radius?

b) A circle has a radius 7.75 cm. What is the diameter?

4) A circular tabletop is to be cut from a rectangular piece of wood that measures 1.20m by 1.80m. What is the radius of the largest tabletop that could be cut? Explain your answer and include a sketch.



5) A glass has a circular base with radius 3.5cm. A rectangular tray has dimensions of 40 cm by 25 cm. How many glasses will fit on the tray?