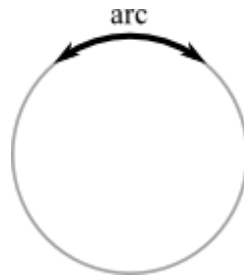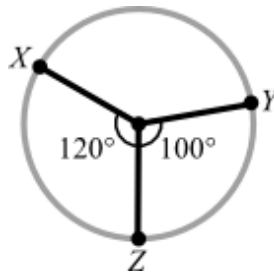# Arc Length

These notes are intended as a summary of section 6.2 (p. 483 – 484) in your workbook. You should also read the section for more complete explanations and additional examples.

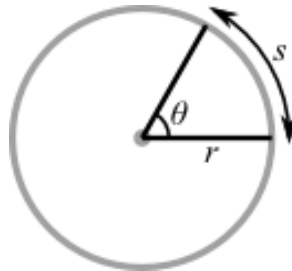An arc of a circle is a portion of the circumference of the circle.

An arc can be measured by one of two methods:

1. Measure the central angle subtended by the arc.

   - e.g. In the following image, the arc XZ measures $120°$.

2. Measure the length of the arc itself.

   - The length of an arc (or arc length) is typically represented by the letter s.

   - The formula for finding arc length is $s = 2\pi r \left(\dfrac{\theta}{360°} \right)$ where θ is in degrees.

Example (not in workbook)

As a fraction of π, determine the length of an arc that subtends a central angle of $36°$ on a circle with radius 40 cm.

Example (not in workbook)

If a circle has a radius of 40 cm, how large is the central angle that subtends an arc of 15 cm?

Example (not in workbook)

Determine the radius of a circle in which a central angle of $315°$ subtends an arc of 19.2 m.

Homework: #1 – 4 in the exercises (p. 485 – 486). Answers on p. 486.