Arcs and Central Angles of Circles

STUDENT ACTIVITY

Name _____
Period _____
Date _____

by: Tina Hill, Daniel Boone High School,
Washington County, TN

Activity Overview

Students discover the central angles of circles plus minor and major arcs.

Concepts

- Central Angles
- Minor Arcs
- Major Arcs

Tennessee Standards

- Geometry
  - 3108.4.40 Find angle measures, intercepted arc measures, and segment lengths formed by radii, chords, secants, and tangents intersecting inside and outside circles.
  - 3108.5.1 Determine the area of each sector and the degree measure of each intercepted arc in a pie chart.

Teacher Preparation

- Load or have the students load the tns file: arcs and central angles of circles.tns
- Copy the student activity sheet: Arcs and Central Angles of Circles Student Activity Sheet

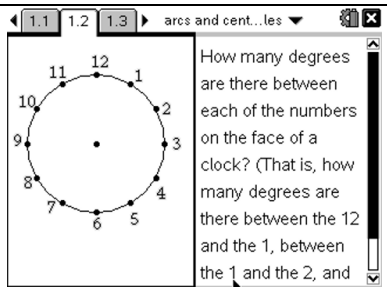
TI Nspire Applications

Graphs & Geometry

Calculator

Notes

Page 1.2

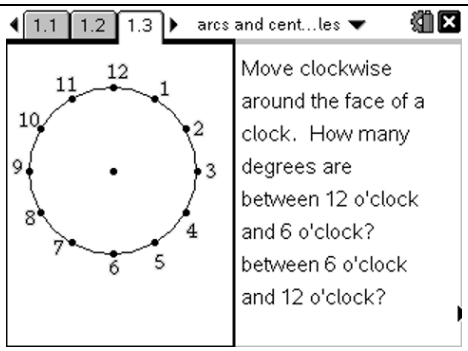
Using the angle measurement tool, find the measure of the angle between each number on the face of a clock with the center of the circle as the vertex of the angle. (That is, how many degrees are there between the 12 and the 1, between the 1 and the 2, and so forth?) How many degrees are there between each of the numbers on the face of a clock? *Students should find that the measurement between each number is 30° with the total number of degrees = 360°.*	

Arcs and Central Angles of Circles

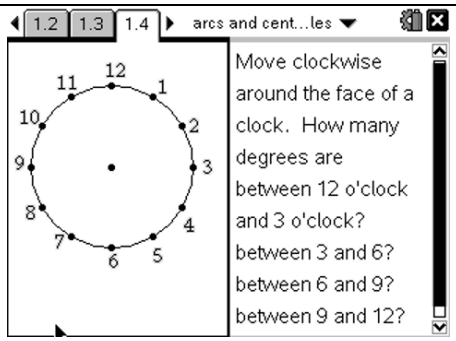
STUDENT ACTIVITY

Name _____
Period _____
Date _____

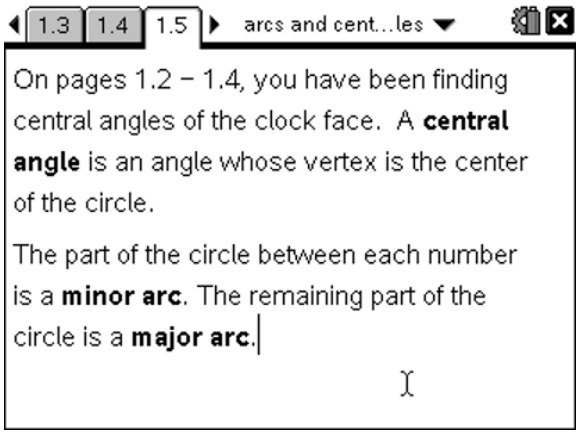
Page 1.3

Using the angle measurement tool, move clockwise around the face of a clock. How many degrees are between 12 o'clock and 3 o'clock? _____ between 3 and 6? _____ between 6 and 9? _____ between 9 and 12? _____ What is the total number of degrees? _____ *Students should find that the measurement between each number is 90° with the total number of degrees = 360°.*	

Page 1.4

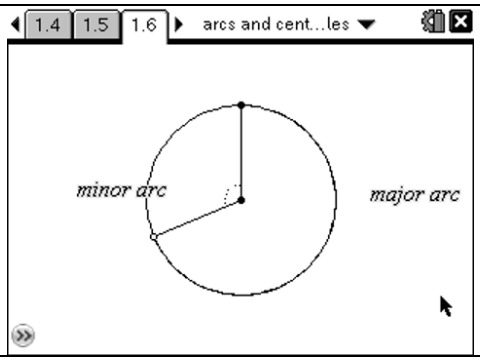
Using the angle measurement tool, move clockwise around the face of a clock. How many degrees are between 12 o'clock and 6 o'clock? _____ between 6 o'clock and 12 o'clock? _____ What is the total number of degrees? _____ *Students should find that the measurement between each number is 180° with the total number of degrees = 360°.*	

Page 1.5

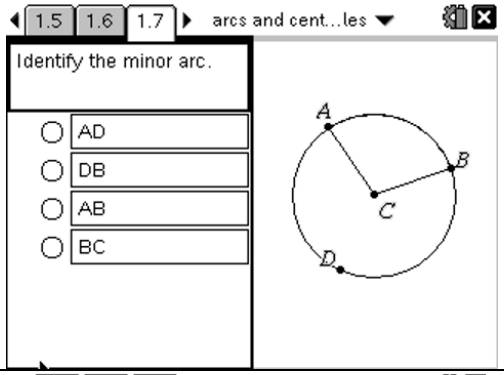
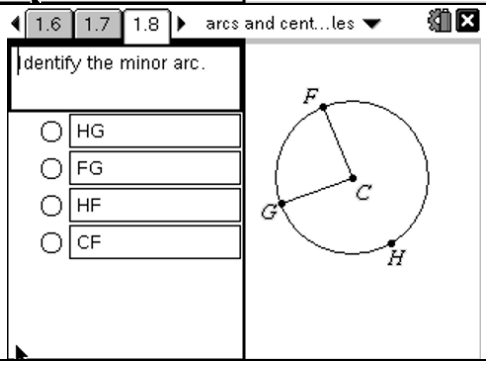


Arcs and Central Angles of Circles
TEACHER GUIDE

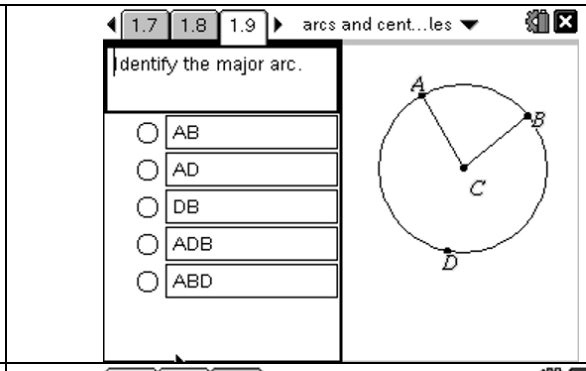
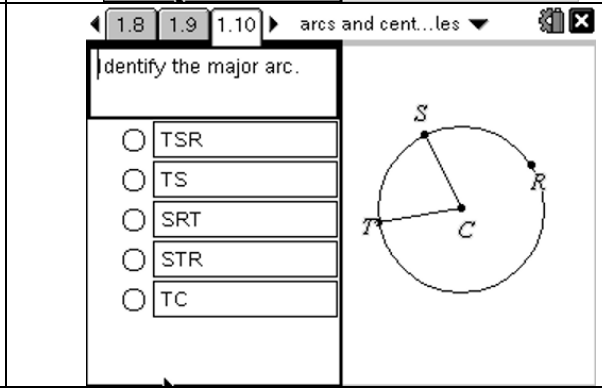
Page 1.6

Grab the open point and move it around the circle. Notice the major arcs and the minor arcs.	

Pages 1.7 – 1.10

Identify the minor arc and major arc of the circles. Check your answers by choosing: menu Check answers	
Correct answer: AB	
Correct answer: FG	

Arcs and Central Angles of Circles
TEACHER GUIDE

Correct Answer : ADB	
Correct answer: SRT	

Page 1.11

Measure the remaining angles to verify that they are the same measure as ∠AOB. Arc AB is one-sixth (60/360) of the total circle. To find the length of arc AB find the circumference of the circle *2πr = 37.70* multiply the circumference by 1/6 *37.70*(1/6) = 6.28* Find the length of arc AC arc AC is what part of the total circle? *120/360 or 1/3* multiply by circumference *37.70*1/3 = 12.57* Find the length of arc AD arc AD is what part of the total circle? *180/360 = 1/2* multiply by circumference *37.70*1/2 = 18.87* How do you think you would find the measure of the major arcs? *Answer may vary. Example: Subtract the minor arc from the circumference.*