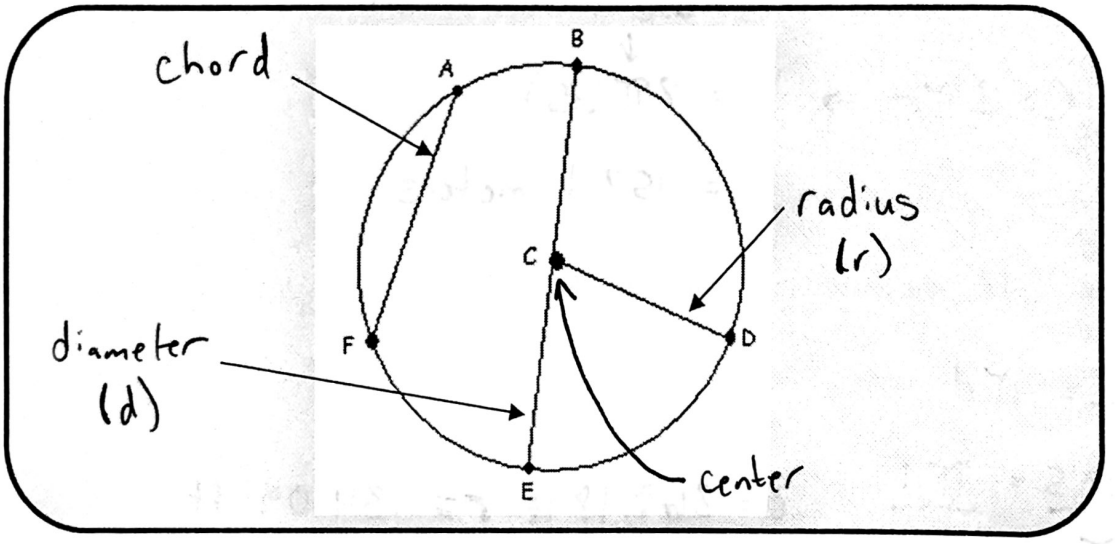
Geometry Date _____

10.1 Circles and Circumference

G.CI.1 Define, identify and use relationships among the following: radius, diameter, arc, measure of an arc, chord, secant, tangent, and congruent concentric circles.
G.CI.4 Solve real-world and other mathematical problems that involve finding measures and circumference, area of circles and sectors, and arc lengths and related angles (central, inscribed, and intersections of secants and tangents).
G.LP.2 Know precise definitions for angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, and plane. Use standard geometric notation.

Circle ⇨ set of all points equidistant from a given point (center)



$r = \frac{d}{2}$

$d = 2r$

Ex 1:

a. Name the circle.

circle Q

b. Name a radius of the circle.

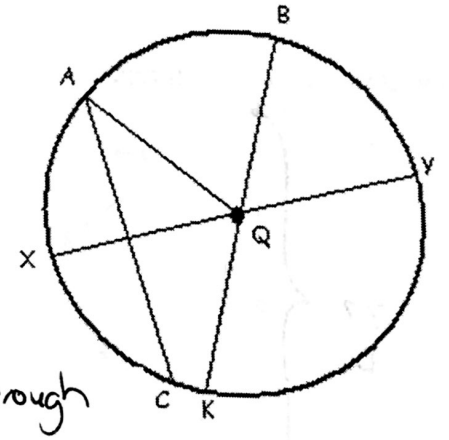
QX, QK, QY, QB, QA

c. Name a chord of the circle.

AC, BK, XY

d. Name a diameter of the circle. "chord that passes through the center"

BK, XY



Ex 2:

Circle *C* has diameters $\overline{RX}$ and $\overline{SY}$.

a. If *RX* = 29, find *GX*.

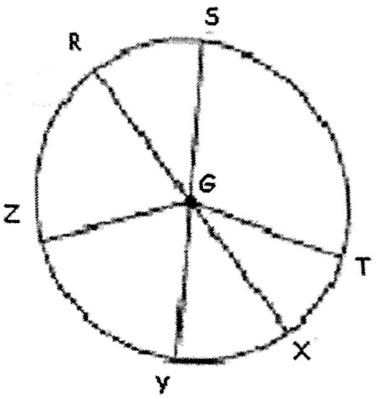
29 ÷ 2 = 14.5

b. If *GS* = 13.6, find *SY*.

13.6 × 2 = 27.2

c. If GZ = 32.4, find *RG*. radii are congruent

RG = 32.4



Circumference ⇨ distance around a circle (like perimeter)

Equation: $C = 2\pi r$ or $C = \pi d$

Ex 3:

a. Find C if $r = 25$ meters.

use "π" button on calculator

$C = 2\pi r \rightarrow C = 2\pi(25)$

$= 157.1$ meters

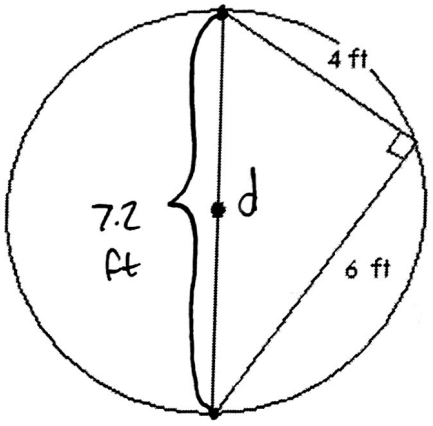
b. Find d and r to the nearest hundredth if $C = 842.5$ feet.

$C = \pi d$

$\frac{842.5}{\pi} = \frac{\pi d}{\pi}$ $d = 268.18$ ft $r = 134.09$ ft

Ex 4:

Find the exact circumference.



$4^2 + 6^2 = c^2$

$16 + 36 = c^2$

$\sqrt{52} = \sqrt{c^2}$

$c = 7.2$ ft

$C = \pi d \rightarrow C = \pi(7.2)$

$C = 22.6$ ft