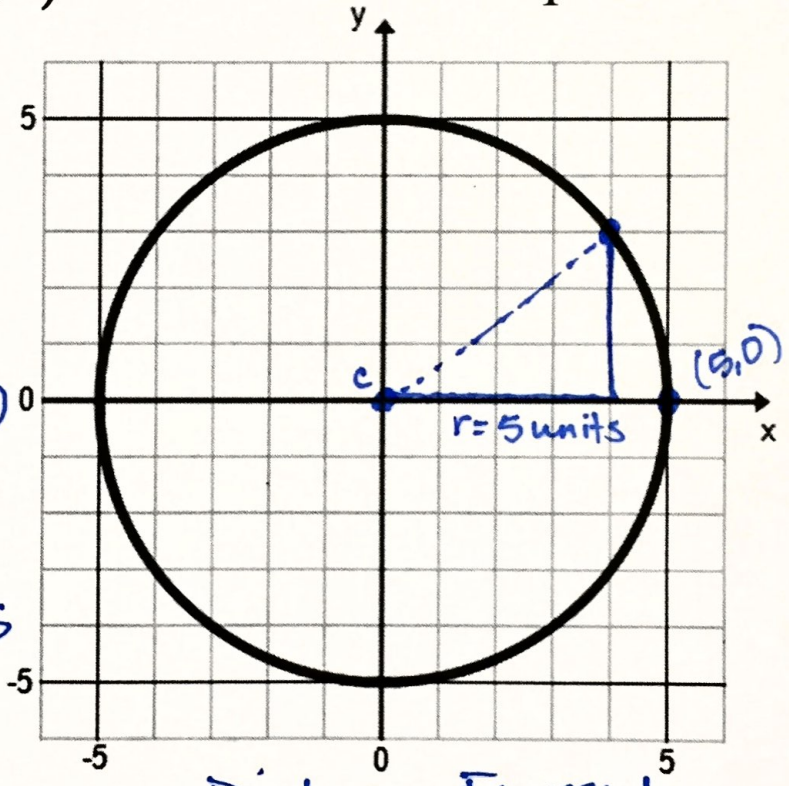
Formulas

Circumference: $2\pi r = \pi d$

Area: πr^2

Ex. 1: Given this circle with the center at the origin (0,0) and a point on the circle at **(5,0)**. Determine if the points are on the circle.



A. Identify the radius:

$r = 5$ units

B. **(4,3)** on the ⊙

$a^2 + b^2 = c^2$

$3^2 + 4^2 = c^2$

$9 + 16 = c^2$

$25 = c^2$ $\quad c = \sqrt{25} = 5$

$\sqrt{25} = 5$

C. $\left(2, \sqrt{19}\right)$ $C(0,0)$

$\sqrt{(2-0)^2 + (\sqrt{19}-0)^2}$

$2^2 + (\sqrt{19})^2$

$4 + 19$

$\sqrt{23}$

Distance Formula
Given pt & the center

Not on ⊙
$\sqrt{23} \neq 5$

D. Circumference

$2\pi r$

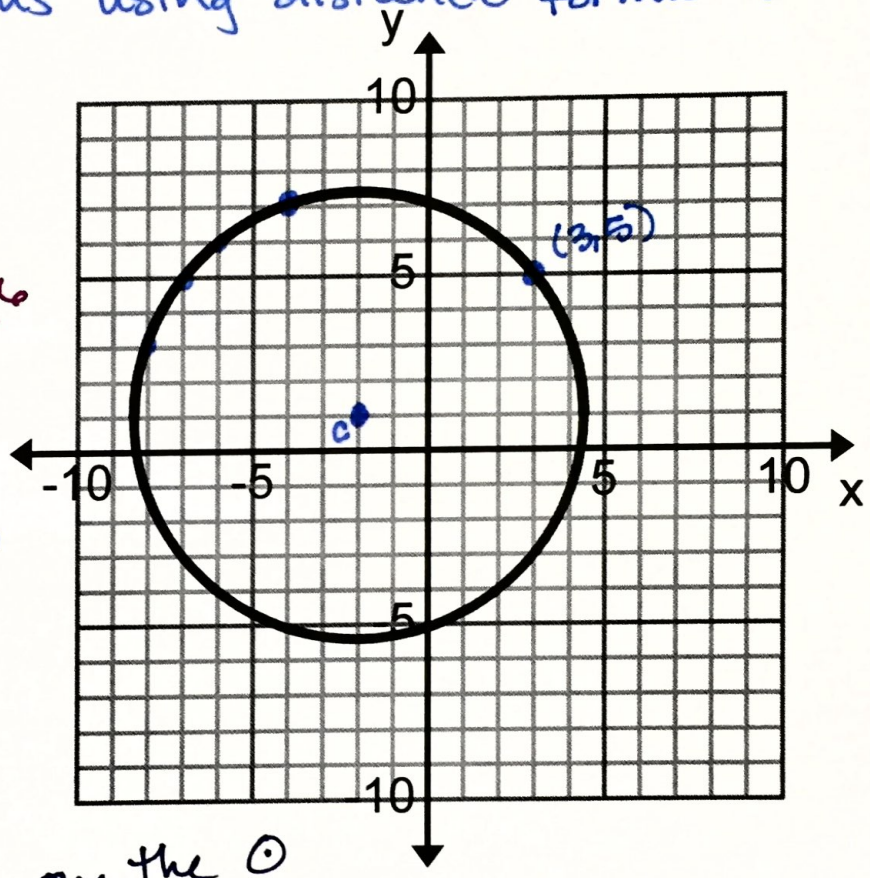
$2\pi(5) = 10\pi \approx 31.42$ u

E. Area

πr^2

$\pi(5)^2 = 25\pi \approx 78.54$ u²

Ex. 2: Given this circle with the center at $(-2,1)$ and a point on the circle at $(3,5)$. Determine if the point are on the circle. Find radius using distance formula.



A. Identify the radius:

(3,5) (-2,1)

$\sqrt{(3+2)^2 + (5-1)^2}$

$5^2 + 4^2 = 25+16$

$\sqrt{41}$

B. $(-4,9)$ C(-2,1)

$\sqrt{(-4--2)^2 + (9-1)^2}$

$\sqrt{(-2)^2 + 8^2}$

$\sqrt{4+64}$

$\sqrt{68}$

Not on ⊙

$\sqrt{68} \neq \sqrt{41}$

C. $(-6,-4)$ C(-2,1)

$\sqrt{(-6--2)^2 + (-4-1)^2}$

$\sqrt{(-4)^2 + (-5)^2}$

$16 + 25$

$\sqrt{41}$

on the ⊙

$\sqrt{41} = \sqrt{41}$

D. Circumference

$2\pi r$

$2\pi(\sqrt{41})$

40.23 u

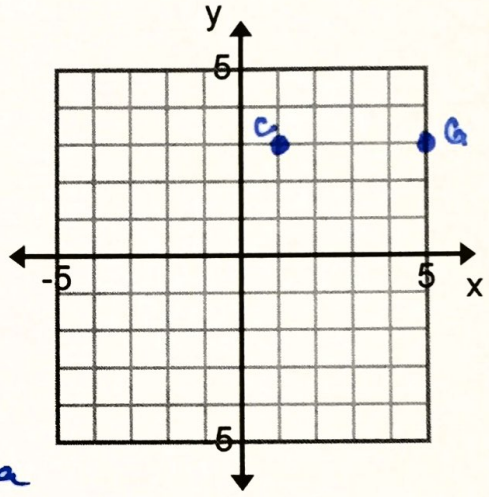
E. Area

$41\pi \approx$

$(\sqrt{41})^2$

128.81 u^2

Ex. 3: Given a circle with the center at (1,3) and a point of (5,3) on the circle. Determine if the following points are on the circle.



A. (0,–1)

B. (1,7)

Draw
① Center & given pt on graph.

② Find radius. May have to use distance formula

③ Use new pt & center to see if it matches the radius. (Distance formula)

Ex. 4: Find the perimeter and area of the figure.

$C = 2\pi r/2$

πr

$\pi(\sqrt{5}) + 2\sqrt{5} \approx 11.50$ u

half ⊙ diameter

P:

$A = \frac{\pi r^2}{2}$ $\pi(\sqrt{5})^2$

$\frac{5\pi}{2} \approx 7.85 u^2$