

Name: Equations Skills Check

Serafino - Precalculus SI

No Calc

1. Write the equation, and state domain & range

a) C (-7, 4) diameter:  $\sqrt{32}$

Equation:

Domain:

Range:

b) Center: (-4, 0) Point: (-6, 2)

Equation:

Domain:

Range:

2. State if point is in, on, or outside:

a)  $(x-2)^2 + (y+7)^2 = 6$  P(3, -9)

b)  $(\frac{2\sqrt{5}}{5}, -\frac{\sqrt{5}}{5})$  in, out or on the unit circle?

3. Circle ~~with~~ center at origin has radius of 4.  
Give exact answers for the coordinates of  
the point intersected by...

a)  $\theta = \frac{5\pi}{6}$

b)  $\theta = \frac{11\pi}{4}$

Calculator OK

4. Same directions as #3,  $\theta = \frac{157\pi}{180}$

5. Circle is at origin.

a) what angle,  $\theta$ , intersects <sup>A</sup> $(-3.6, 1.8)$ ?

b) what's the radius?

c) what's the length of minor arc  $\widehat{AB}$  if  $B(-2.9218, -2.7683)$ ?

Name: Period 3 - KEY

Serafino - Precalculus 51

No Calc

1. write the equation, and state domain & range

a) C (-7, 4) diameter:  $\sqrt{12} \rightarrow 2\sqrt{3}$  radius =  $\frac{2\sqrt{3}}{2} = \sqrt{3}$

Equation:  $(x+7)^2 + (y-4)^2 = 3$

Domain:  $x \in [-7-\sqrt{3}, -7+\sqrt{3}]$

Range:  $y \in [4-\sqrt{3}, 4+\sqrt{3}]$

b) Center: (-4, 0) Point: (-6, 2)  $r = \sqrt{2^2 + 2^2} = \sqrt{8} = 2\sqrt{2}$

Equation:  $(x+4)^2 + y^2 = 8$

Domain:  $x \in [-4-2\sqrt{2}, -4+2\sqrt{2}]$

Range:  $y \in [-2\sqrt{2}, 2\sqrt{2}]$

2. state if point is in, on, or outside: C: (2, -7)

a)  $(x-2)^2 + (y+7)^2 = 6$  P (3, -9) ↗ ↘

inside

distance:  $\sqrt{2^2 + 1^2} = \sqrt{5}$

$1^2 + 2^2 = 5$

$5 < 6$

$\sqrt{5} < \sqrt{6}$

b)  $(\frac{2\sqrt{5}}{5}, -\frac{5}{5})$  in, out or on the unit circle? *already can see it will be out*

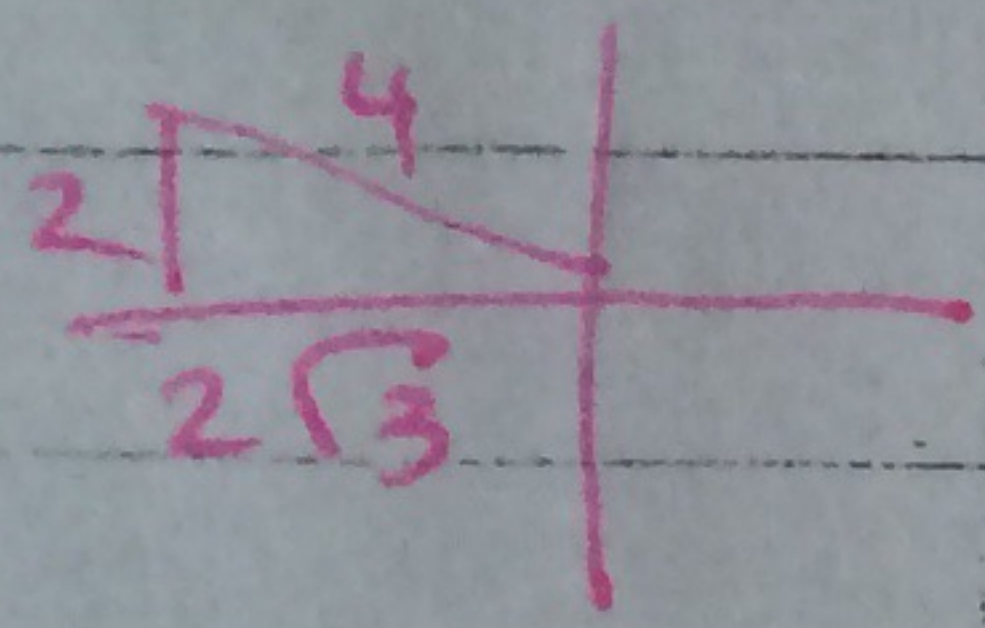
$(\frac{2\sqrt{5}}{5})^2 + (-\frac{5}{5})^2 = ?$

$\frac{20}{25} + \frac{25}{25} = ?$

$\frac{45}{25} > 1$

outside

3. Circle with center at origin has radius 4.  
 Five exact answers for the coordinates of  
 the point intersected by...

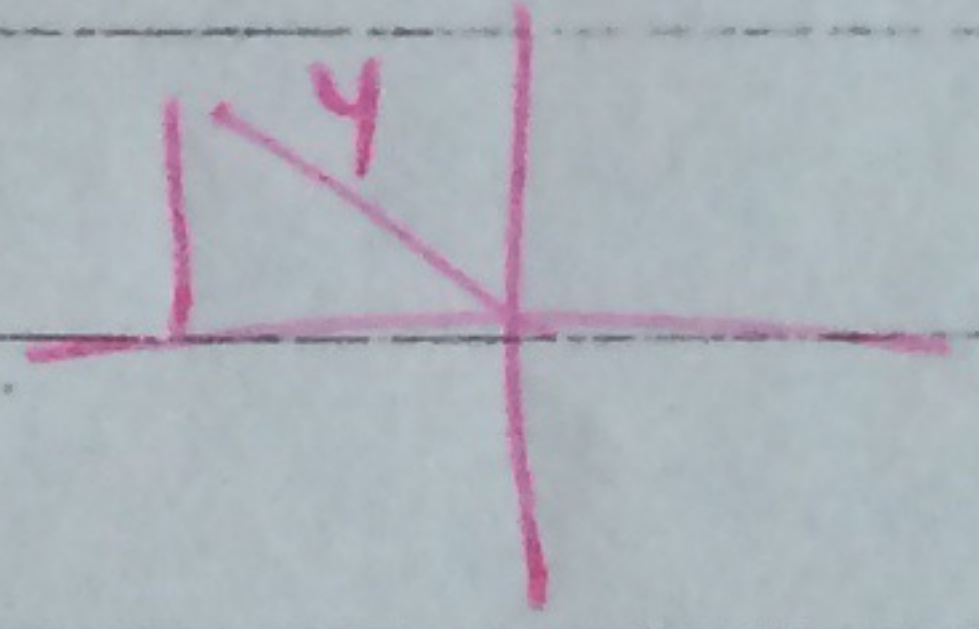


a)  $\theta = \frac{5\pi}{6}$

b)  $\theta = \frac{11\pi}{4}$

$(-2\sqrt{3}, 2)$

$(-2\sqrt{2}, 2\sqrt{2})$



Calculator OK

$(r \cos \theta, r \sin \theta)$

4. Same directions as #3,  $\theta = \frac{157\pi}{180}$

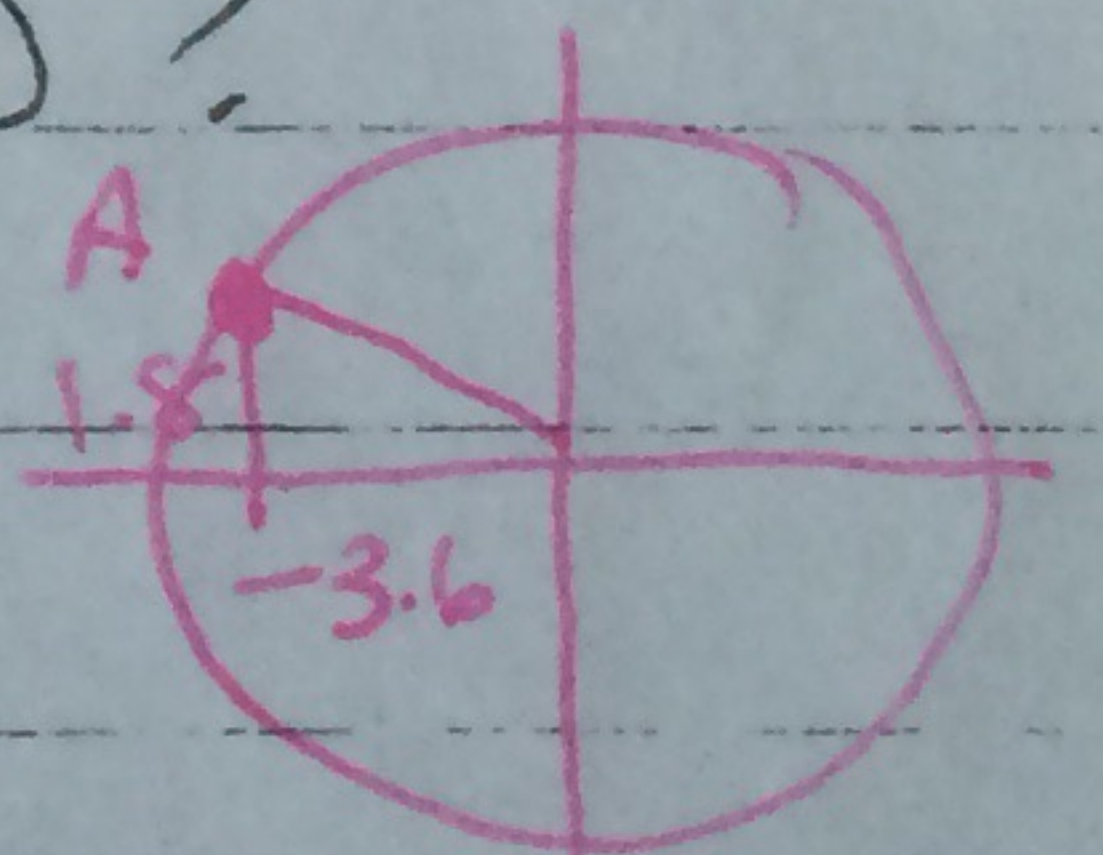
(work)  $\rightarrow (-3.6820, 1.5629)$   
 $(4 \cos \frac{157\pi}{180}, 4 \sin \frac{157\pi}{180})$

5. Circle is at origin.

a) what angle,  $\theta$ , intersects  $(-3.6, 1.8)$ ?

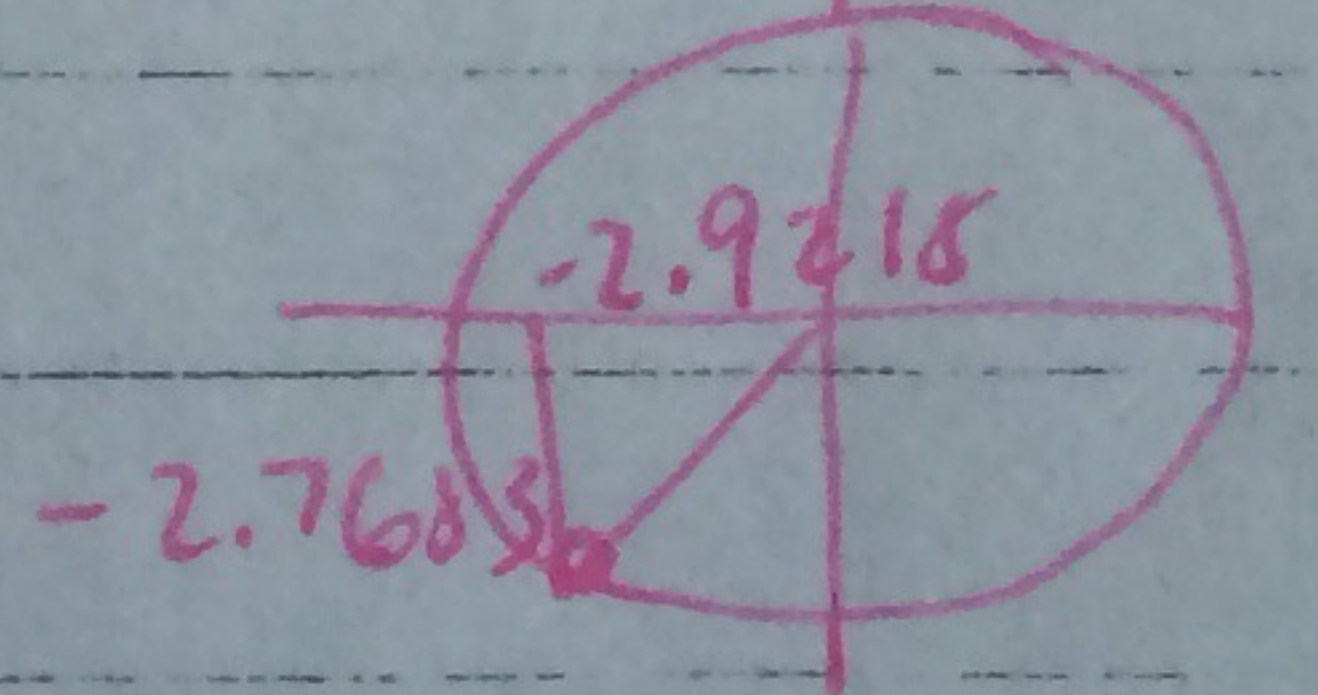
$\hat{\theta} = \tan^{-1}(1.8/3.6)$        $\theta = \pi - \hat{\theta}$

$\hat{\theta} = 0.46364761$        $\theta = 2.677945$



b) what's the radius?

$r = \sqrt{1.8^2 + 3.6^2} = r = 4.024922$



c) what's the length of minor arc  $\widehat{AB}$  if  $B(-2.9218, -2.7683)$ ?

$\hat{\theta} = \tan^{-1}(\frac{2.7683}{2.9218}) = 0.758428$

$\widehat{mAB} = \hat{\theta} + \hat{\theta}$   
 $= 0.46364761 + 0.758428$   
 $\theta = 1.2220756$

$s = r\theta = (4.02...)(1.222...)$

$s = 4.918759$