### 1.7 Stakin' It

## Practice

I. Finding points on a circle

Given the equation of a circle centered at $(0,0)$, find one point in each quadrant that lies on the given circle.

1. $x^{2}+y^{2}=25$
a) quadrant $I$ :
b) quadrant II:
c) quadrant III:
d) quadrant IV:
2. $x^{2}+y^{2}=4$
a) quadrant $I$ :
b) quadrant II:
c) quadrant III:
d) quadrant IV:
3. $x^{2}+y^{2}=36$
a) quadrant $I$ :
b) quadrant II:
c) quadrant III:
d) quadrant IV:
4. $x^{2}+y^{2}=1$
a) quadrant I :
b) quadrant II:
c) quadrant III:
d) quadrant IV:
5. $x^{2}+y^{2}=9$
a) quadrant I :
b) quadrant II:
c) quadrant III:
d) quadrant IV:

## II. Locating Points - Coordinates, Arc length, Reference angle, and Radius

In the diagram triangle $A B C$ is a right triangle. Point $B$ lies on the circle and is described by the rectangular coordinates ( $x$, $y)$.

- $s$ is the length of the arc subtended by angle $\theta$.
- $r$ is the radius of circle $A$.

Answer the following questions using the given information.
6. $B$ has the rectangular coordinates $(5,12)$.

a) Find $r$.
b) Find $\theta$ to the nearest tenth of a degree.
c) Find $s$ by using the formula $s=\frac{\theta}{360^{\circ}}(d \pi)$.
d) Describe point $B$ using the coordinates $(r, \theta)$.
e) Describe point $B$ using the radius and arc length $(r, s)$.
7. $B$ has the rectangular coordinates $(33,56)$.
a) Find $r$.
b) Find $\theta$ to the nearest tenth of a degree.
c) Find $s$ by using the formula $s=\frac{\theta}{360^{\circ}}(d \pi)$.
d) Describe point $B$ using the coordinates $(r, \theta)$.
e) Describe point $B$ using the radius and arc length $(r, s)$.
8. $B$ is described by $(r, \theta)$, where $\theta \approx 58.11^{\circ}$ and $r=53$.
a) Find $(x, y)$ to the nearest whole numbers.
b) Find $s$ by using the formula $s=\frac{\theta}{360^{\circ}}(d \pi)$.
c) Describe point $B$ using the radius and arc length $(r, s)$.
9. $B$ is described by $(r, \theta)$, where $\theta \approx 25.01^{\circ}$ and $r=85$.
a) Find $(x, y)$ to the nearest whole numbers.
b) Find $s$ by using the formula $s=\frac{\theta}{360^{\circ}}(d \pi)$.
c) Describe point $B$ using the radius and arc length $(r, s)$.
10. $B$ is described by $(r, s)$, where $s \approx 46$ and $r=37$.
a) Find $(x, y)$ to the nearest whole numbers.
b) Find $\theta$ by using the formula $s=\frac{\theta}{360^{\circ}}(d \pi)$.
c) Describe point $B$ using $(r, \theta)$.
11. $B$ is described by $(r, s)$, where $s \approx 62.66$ and $r=73$.
a) Find $(x, y)$ to the nearest whole numbers.
b) Find $\theta$ by using the formula $s=\frac{\theta}{360^{\circ}}(2 \pi r)$.
c) Describe point $B$ using $(r, \theta)$.

## III. Radian Measurement

Label each point on the circle with the measure of the angle of rotation. Angle measures should be in radians. (Recall that a full rotation around the circle would be $2 \pi$ radians.)

Example 1: The circle has been divided equally into 8 parts. Each part is equal to $\frac{2 \pi}{8}$ or $\frac{\pi}{4}$ radians

Indicate how many parts of $\frac{\pi}{4}$ radians there are at each position around the circle Finish the example by writing the angle measures for points F, G, and H.


Label the figures below using a similar approach as the example.
12.

13.

15.


