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 *ABC* 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 θ.
- *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, θ) .
- 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 θ 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, θ) .

e) Describe point *B* using the radius and arc length (*r*,*s*).

8. *B* is described by (r, θ) , 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, θ) , 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 θ by using the formula $s = \frac{\theta}{360^{\circ}}(d\pi)$.

c) Describe point B using (r, θ) .

- 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 θ by using the formula $s = \frac{\theta}{360^{\circ}}(2\pi r)$.
 - c) Describe point B using (r, θ) .

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 2π 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.





14.

12.



15.

