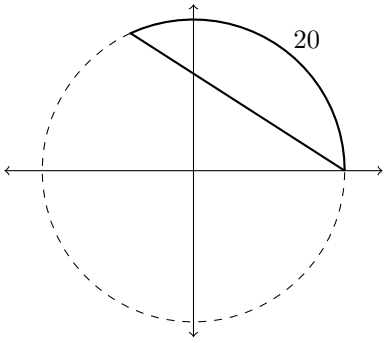
3.1/3.2: Radians and General Triangles

Tips:

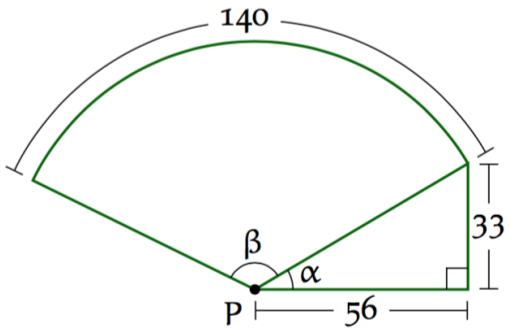
- Remember the close relationship between radians and arc length.
- 2π radians is equal to $360°$.
- Use law of sines when:
  - You have two sides and an opposite angle, or
  - You have two angles and an opposite side.

1. Find the length w of the chord of the circle, assuming the radius of the circle is 10.

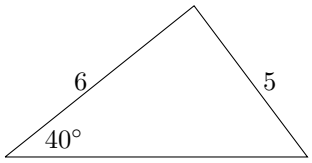


2. On a circle of radius 12, what is the arc length traversed by an angle of $\frac{\pi}{4}$?

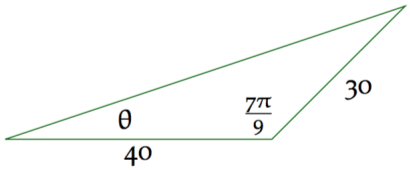
3. Find the angles α and β below.



4. Find the length of the missing side.



5. Find the angle θ.



6. A ship leaves harbor, travels 5 miles north, and then turns and travels 2 miles north east. How far is the ship from the harbor at that point?

7. Find θ, d, and ℓ in the diagram below. (Hint: Make a mental roadmap of how you will solve the problem.)