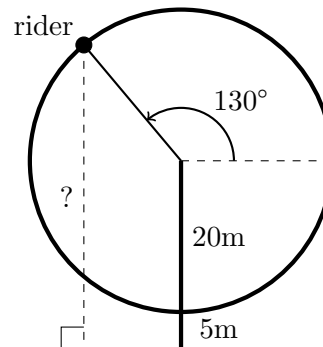


6. [10 points] A diagram showing a Ferris wheel is below. The radius of the Ferris wheel is 20 meters, and the lowest point (where people board) is reached by a small set of stairs and is 5 meters above ground level. We'll consider the following question about this scenario:

When an arm of the Ferris wheel is making an angle of 130° with horizontal, how high is that rider off the ground?



- a. [3 points] Ayisha really likes to do trig problems using a unit circle perspective. She comes up with a correct answer that involves $\sin(130^\circ)$ in her answer. What is Ayisha's answer? *Give your answer in exact form.*

_____ meters

- b. [2 points] Oh no! Ayisha accidentally had her calculator in radians when she computed her answer. What would she get in that case? How could she recognize right away that her answer was incorrect?
- c. [4 points] Bruno really likes to do trig problems using right triangles. He comes up with a correct answer that involves $\cos(40^\circ)$. Draw the right triangle Bruno could have been considering and use that triangle to find Bruno's correct expression for the rider's height from the ground. *Give your answer in exact form.*

_____ meters.

- d. [1 point] Using a calculator, verify that Ayisha's and Bruno's answers agree. That is, find the numerical value of both expressions. (*We're now assuming that Ayisha's calculator is correctly back in degrees!*)