7. [8 points]
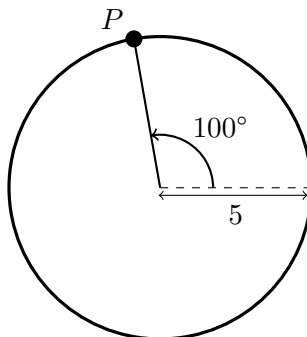
    a. [5 points] The point P lies on a circle with center $(0,0)$ and radius 5. P makes an angle of $100°$ with the positive horizontal axis as shown below.

      i. Find the coordinates of P, either in exact form or rounded to 3 decimal places.

Answer: $P =$ _____

      ii. Find another angle θ between $0°$ and $360°$ so that $\cos(\theta) = \cos(100°)$, then briefly justify your answer. You can draw any relevant points and/or angles on the circle above as part of your justification.

Answer: _____°

Justification:

    b. [3 points] You are trying to determine the height h of a building on campus, as shown below. You are 30 meters in front of the building (that is, to the right in the diagram), and from that location, you measure that the angle between the ground and the top of the building is $65°$.

Carefully draw a relevant triangle on the diagram below, then use it to find h. Be sure your triangle includes labels for any relevant distances or angles. Give your answer in exact form or rounded to 3 decimal places.

Answer: $h =$ _____ meters