Exam III
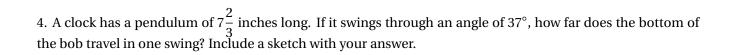### PRACTICE

1. Convert $140°$ to radians. Give an exact value if possible.

2. Convert $-\dfrac{11\pi}{23}$ to degrees.

3. Find the exact value of s in $\left[\frac{\pi}{2}, \pi\right]$ where $\tan s = -\sqrt{3}$.

4. A clock has a pendulum of $7\frac{2}{3}$ inches long. If it swings through an angle of $37°$, how far does the bottom of the bob travel in one swing? Include a sketch with your answer.

5. Janet is pedaling up a mountain trail. She is turning the front crank at a constant rate of 64 RPM. The gear on the front crank has a diameter of 24 cm while the gear on the back has a diameter of 10 cm. If her back wheel has a diameter of 42 cm, how fast is she riding in kilometers per hour? Include a sketch with your answer.

6. Sketch the function $y = 2 - \frac{1}{2}\cos\left(\frac{x}{2} - \frac{\pi}{4}\right)$ over *two* periods.

7. A weight is attached to a coiled spring. It is pulled down a distance of 2 inches and released. The time for the weight to complete one oscillation is 2.5 seconds.

a) Write out the **amplitude**, **period**, and **frequency** for oscillating weight.

b) Give an equation that models the position of the weight at time t.

c) Use the equation to determine the position of the weight at $t = 3$ seconds.