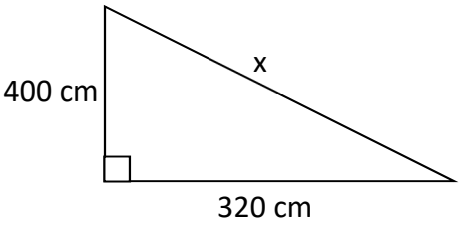
Applied Math 30S — NOT FOR HAND-IN
Trigonometry Practice Test

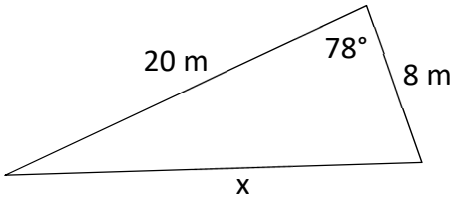
Complete the following questions to practice for the upcoming test. Round all answers to ***two decimal places*** where rounding is necessary. Answers are provided on the final page of the practice test – check your answers as you work through the practice test (not all at the end).

1. Find the missing piece of information in each of the following triangles (x or θ):

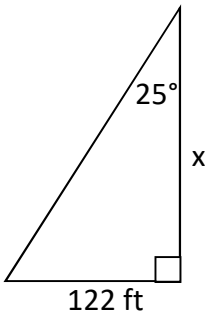
a)



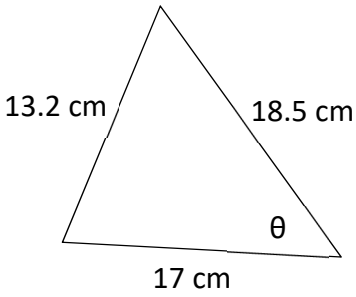
b)



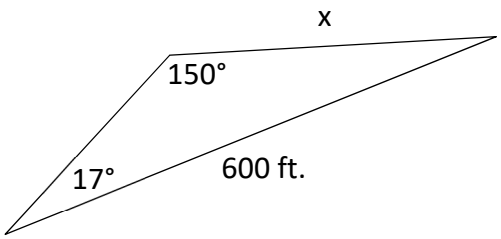
c)



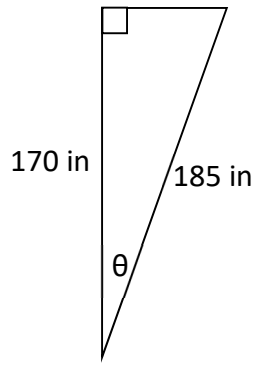
d)



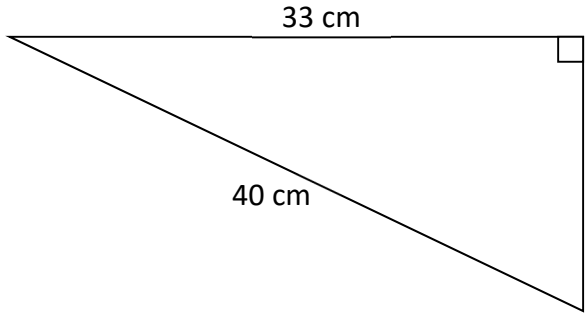
e)



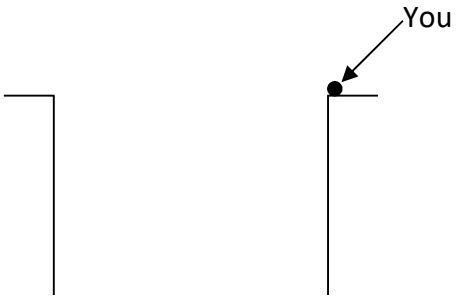
f)



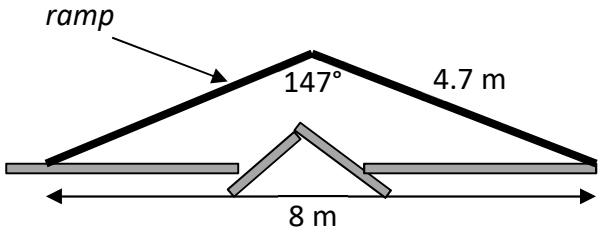
2. Solve the following triangle:



3. You are standing on the edge of a cliff facing a drop and then another cliff of the same height. The angle of depression from you to the base of the other cliff is 70°. The gap between the cliffs is 60m wide. Calculate the height of the cliffs.



4. You are in charge of designing a wooden ramp to go over a section of heaved concrete on a sidewalk in the city. The design is shown below. Powered wheelchairs can traverse the ramp only if the angle that the ramp makes with the sidewalk is less than 15°. Will your design be able to accommodate people in powered wheelchairs? Justify your answer.

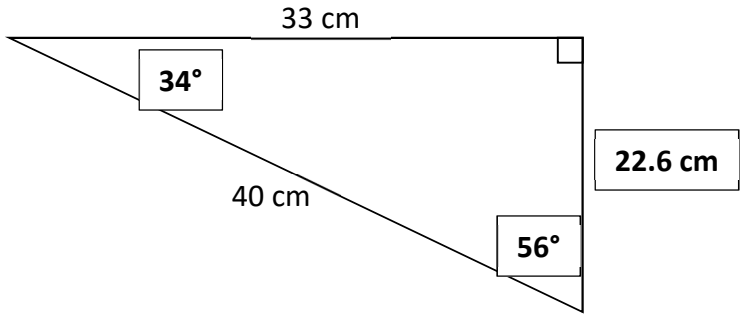


5. A string is tied to the top of a pole. You attach the other end of the string to the ground so that it is taut – it is tied up 6' from the base of the pole. The angle of elevation of the string is 55°. How long is the string?

Answer Key

1. a) 512.25 cm b) 19.94 m c) 261.63 ft d) 43.40° e) 350.85 ft f) 23.23°

2.



3. 164.85 m

4. The angle the ramp makes with the ground is 18.66°, which means it CAN NOT accommodate people in powered wheelchairs.

5. 10.46’

Trigonometry Formulas

$$a^2 + b^2 = c^2$$

$$\sin\theta = \frac{o}{h}$$

$$\cos\theta = \frac{a}{h}$$

$$\tan\theta = \frac{o}{a}$$

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$a^2 = b^2 + c^2 - 2bc\cos A$$

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$