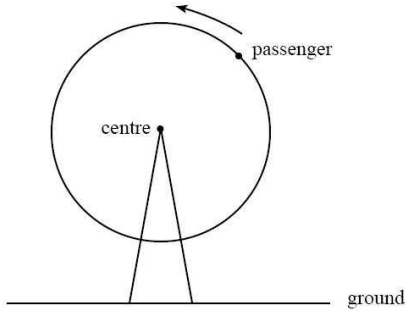# MATH 1500, Homework 5

Due date: 22 October (Friday)

1. Question 3, section 4.1

2. Question 16, section 4.1

3. A circular ferris wheel with radius 10 metres is revolving at the rate of 10 radians per minute. How fast is a passenger on the wheel rising when the passenger is 6 metres higher than the centre of the wheel and is rising?

4. A lump of clay is being rolled out so that it maintains the shape of a circular cylinder (and its volume remains constant). If the length is increasing at a rate proportional to itself, show that the radius is decreasing at a rate proportional to itself. Note: $V = \pi r^2 l$.

5. Question 37, section 4.8 [answer for width of window is $20/(4 + \pi)$]

6. Question 19, section 4.8

7. Question 38, section 4.8

8. [BONUS] Question 40, section 4.8

9. [BONUS] Question 49, section 4.8