

# WMATH1010 Problem Set 3

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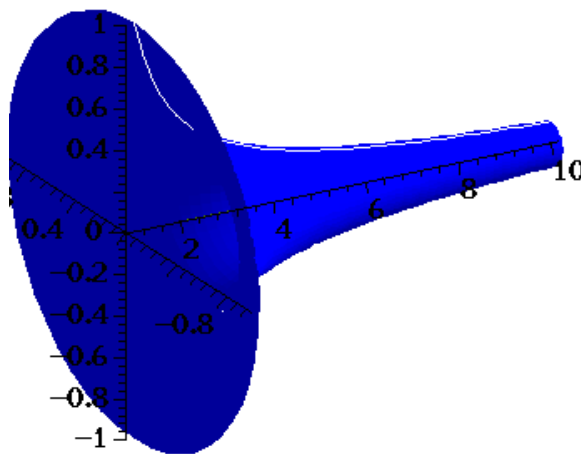
## Question 1

$$2\ln(x+2) + \frac{3}{2}\ln(x^2+6x+13) + \frac{1}{2}\arctan\left(\frac{x}{2} + \frac{3}{2}\right) + C$$

## Question 2

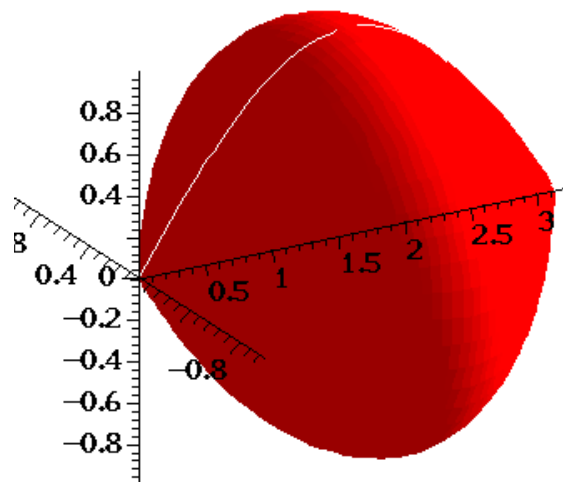
a)

$$V = \frac{9\pi}{10}u^3$$



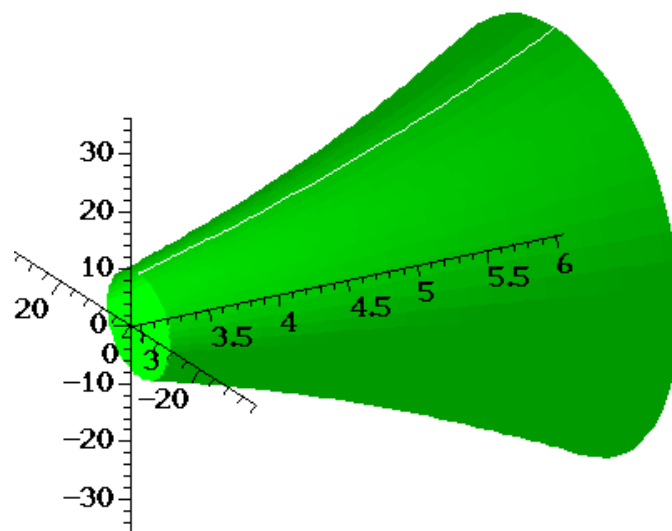
b)

$$V = \frac{\pi^2}{2} u^3$$



c)

$$V = \frac{7533\pi}{5} u^3$$



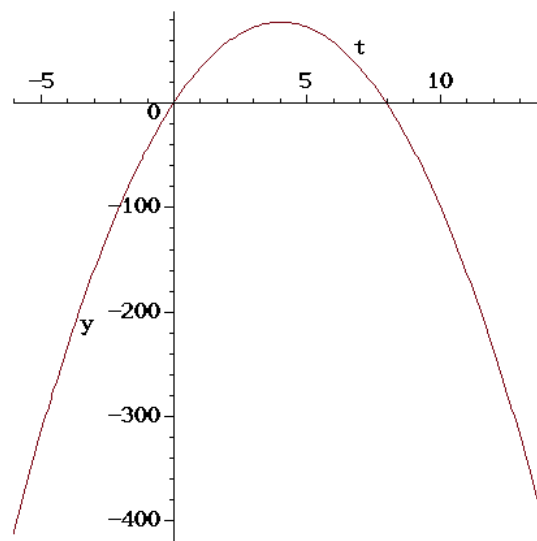
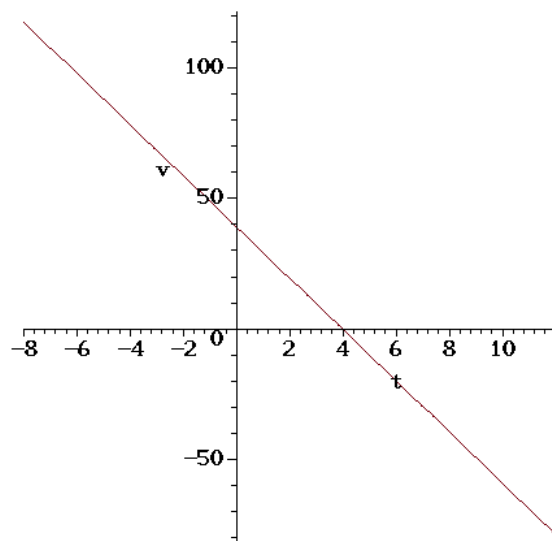
### Question 3

$$y_{\max} = 77.60m$$

$$t_{\text{total}} = 7.96s$$

$$v = 39 - 9.8t$$

$$y = 39t - 4.9t^2$$



### Question 4