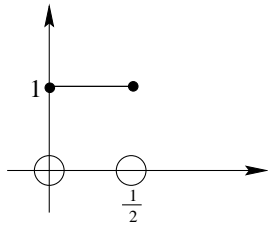


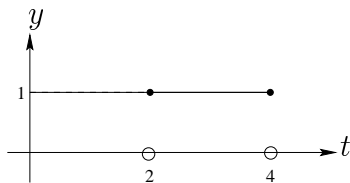
Math 120
Autumn 1999
Quiz 5 Solutions

1. (a) $72^\circ = 72 \left(\frac{\pi}{180}\right)$ radians
 $= \frac{2\pi}{5}$ radians
- (b) $72^\circ = 72 \left(\frac{1}{360}\right)$ revolutions
 $= \frac{1}{5}$ revolutions
- (c) $S = 3 \cdot \frac{2\pi}{5} = \frac{6\pi}{5}$ units.

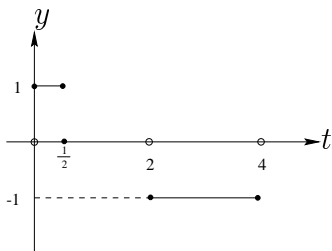
2. (a)



- (b)



- (c)



3. (a) $h = -2x^2 + 80x - (-4x)$
 $= -2x^2 + 84x$

(b) $h(21) = 882$

- (c) In vertex form,

$$\begin{aligned} h &= -2((x - 21)^2 - 441) \\ &= -2(x - 21)^2 + 882. \end{aligned}$$

Solving for x , you get

$$x - 21 = -\sqrt{\frac{1}{2}(882 - h)}$$

or

$$x = 21 - \sqrt{\frac{1}{2}(882 - h)}.$$

The negative root is taken because the x -coordinate of the rocket on the way up is less than 21.