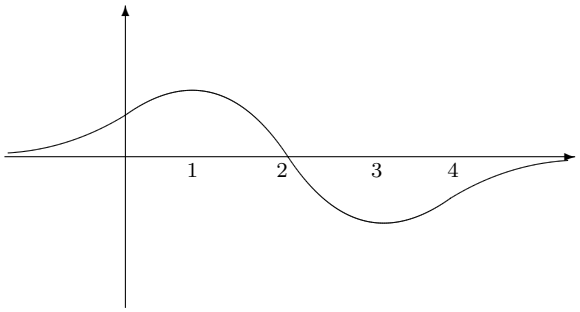
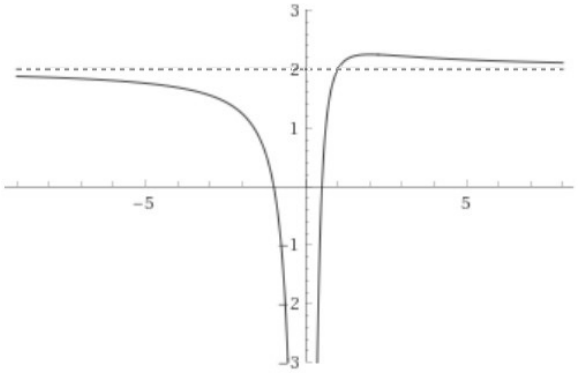
Cal I (S) (Maths 201–NYA)

Answers

1. 

2. VA: $x = 0$, HA: $y = 2$, intercepts: $(-1, 0), (\frac{1}{2}, 0)$
   Note: $y' = \frac{-(x-2)}{x^3}, y'' = \frac{2(x-3)}{x^4}$
   CP: 2 ; PI: 3 . Graph at right.



3. $4\sqrt{\frac{2}{3}}$ by $\frac{32}{3}$

4. (a) 5/6 (b) $1 - \pi/4$ (c) $\mathrm{e}^2\, x + \frac{5}{8}x^{8/5} - \mathrm{e}^x + C$

5. $f(x) = x^2 - \sin x - x + \pi - \pi^2$

6. $f'(x) = \dfrac{2x}{1+x^4}$; min value is 0 (at $x = 0$; $f(x) \geq 0$ obviously!).

7. 128/5

8. $\lim\limits_{n\to\infty} \left(\sum\limits_{i=1}^{n} \frac{2i}{n}\, 2^{\frac{4i}{n}} \right) \frac{2}{n}$