

Start here for  
Question Number: **9**

(a)

$$(i). 500 \times [1.005^{240} + 1.005^{239} + 1.005^{238} + \dots + 1]$$

Now  $1 + \dots + 1.005^{238} + 1.005^{239} + 1.005^{240}$

$$S_n = \frac{a(r^n - 1)}{r - 1} \quad a = 1 \quad r = 1.005 \quad n = 240.$$

$$S_{240} = \frac{1(1.005^{240} - 1)}{1.005 - 1}$$

And then.

$$\frac{1.005^{240} - 1}{0.005} \times 500.$$

$$= 232\,175.55.$$

$$(ii). (1). A_n = (P - 400\,000) \times 1.005^n + 400\,000.$$

0.5 per month.

$$r = 1 + 0.005$$

~~2000 x~~

$$1.005.$$

$$A_n = 2$$

$$(2). S_n = \frac{n}{2}(a + l)$$

$$0 = 14 \text{ num.}$$

$$(b). y = f(x). \quad 0 \leq x \leq 6 \quad f(0) = 0.$$

(i). from  $x=2$

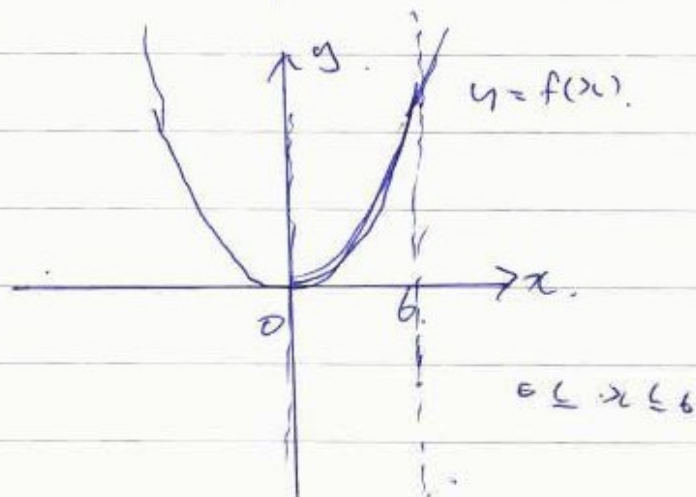
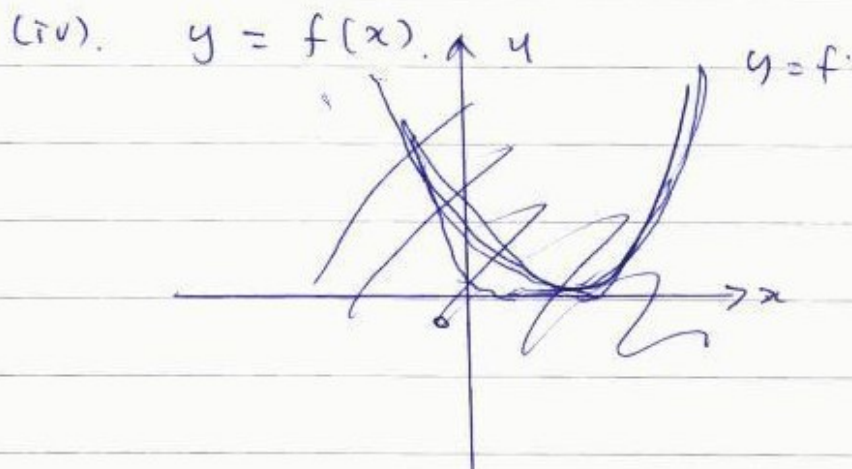
$f(x)$  is increasing.

(ii). 6.

$$(iii) f(6) = f'(x)$$

$$\int f'(x) = \frac{1}{x}$$

$$f(x) = \frac{1}{6}$$



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