Question 5

a.) ϕ = all values of x, except at 5 or -5

$R = y \geq 0$

b.) (i) $\log_{10}(2^{1000}) = 1000 \log_{10} 2$

$= 301.029995$

$\doteq 301.030$

(ii) $2^{10} = 1024$

c) $2^{1000} = (2^{10})^3$

$\therefore 2^{1000} = (1024)^3$

$= 1073741824$

$\therefore$ there are 10 digits when written as a numeral.

c.) $l = r\theta$ $\therefore r = \frac{l}{\theta}$

$\theta = 30°$

$r = \frac{l}{\theta}$

$= \frac{8}{30 \times \frac{\pi}{180}}$

$= \frac{8}{\left(\frac{30\pi}{180}\right)}$

$= 8 \times \frac{180}{30\pi}$

$= \frac{48}{\pi}$

$= 15.28$ cm $=$ [illegible]

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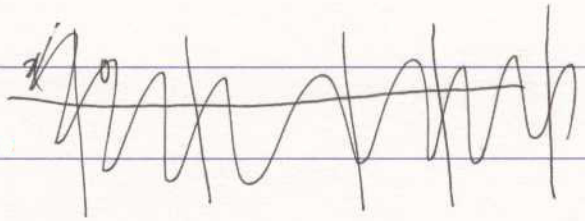
d.) (i) $\int_{1.3}^{1.7} f(x) \approx \frac{4}{2}\left[0 + 2(1.3 + 1.7) + 0\right]$

$= 2\left[2(3)\right]$

$= 12$

(i)



$\frac{h}{2}\left[y_0 + 2(y_1 + y_2 \cdots y_{n-1}) + y_n\right]$

$\frac{4}{2}\left[0 + 2(1.3 + 1.7) + 0\right]$

$2\left[2 \times 3\right]$

2×6

$= 12\ m$

(ii)