

QUESTION 5

a) $2, 3.5, 5, \dots, 32.$

$$\begin{aligned} \text{(i)} \quad T_n &= a + (n-1)d \\ &= 2 + (n-1) \cdot 1.5 \\ &= 2 + 1.5n - 1.5 \end{aligned}$$

$$1.5n = -0.5$$

$$n = 2$$

$n = 20$ times

(ii) $2 + 3.5 + 5 + \dots + 32.$

$$S_n = \frac{20}{2} [2 \times 2 + (20-1) \cdot 1.5]$$

$$= 10 [4 + 28.5]$$

$$= \underline{\underline{325m}}$$

b) $l = r\theta \therefore 38 = 20\theta$

$$\therefore \theta = \frac{38}{20} = \frac{19}{10}$$

c) $y = x^2 - 8x + 4$

(i) vertex = $(0, 0)$ $(x-0)^2 + ax = (y-0)$

(ii) focal length = ~~$\frac{a}{4}$~~ $4a$

since $4 \times \frac{1}{4}xy$ their focal length = $\frac{1}{4}$ focus is at $(0, \frac{1}{4})$