



Q5(a)(i) $a = 2$ $T_n = a + (n-1)d$

$d = 1.5$ $T_n = 32$

$L = 32$ $32 = 2 + (n-1)1.5$

$$\frac{30}{1.5} = (n-1) \times 1$$

$$20 = n - 1$$

$$n = 21 \text{ throws}$$

(ii) $S_n = \frac{n}{2}(a+L)$

$$S_{21} = \frac{21}{2}(2+32)$$

$$S_{21} = 357$$

$$= 357 \text{ metres}$$

(b) $l = r\theta$

$$\frac{38}{26} = 26 \times \theta \quad \theta = 1.9^\circ \times \frac{180}{\pi}$$

$$\theta = 109^\circ$$

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(c)(i) PTO



(c)(i) $y = x^2 - 8x + 4$ $y = 8^2 - 8 \times 8 + 4$

$\frac{dy}{dx} = x - 8 = 0$ $y = 4$
 $x = 8$

vertex (8, 4)

(ii) $y = x^2 - 8x + 4$ $x^2 = 4ay$ $(x-h)^2 = 4a(y-k)$

$x^2 = y + 8x - 4$ $(x-8)^2 = 4a(y-4)$

$x^2 - 8x + 4 = y - 4$ $x^2 - 16x + 64 = 4a(y-4)$

$x^2 - 8x + 32 = y + 28$ $= 4ay - 16$

x^2

$a = \frac{1}{4}$

$= y - 16$

focus $(8, 4\frac{1}{4})$