

Solutions

Award method and answer marks as indicated; accept equivalent correct methods.

2.1

- $C = \pi d = \mathbf{10\pi}$ cm.

2.2

- $A = \pi r^2 = \pi(4)^2 = \mathbf{16\pi}$ cm².

2.3

- $L = (90/360)(2\pi \times 8) = \mathbf{4\pi}$ cm.

2.4

- $S = (1/2)\pi(5)^2 = \mathbf{12.5\pi}$ cm².

3.1

(a)

- $L = (60/360)(2\pi \times 9) = \mathbf{3\pi}$ cm.

(b)

- $S = (60/360)\pi(9)^2 = \mathbf{13.5\pi}$ cm².

(c)

- $P = L + 2r = 3\pi + 18 = 27.4247\dots = \mathbf{27.4}$ cm.

3.2

(a)

- Fraction $f = 90/360 = 1/4$.
- Area $A = f\pi r^2 = \mathbf{16\pi}$ m².
- Arc $L = f(2\pi r) = \mathbf{4\pi}$ m.

(b)

- Count the arc and both radii, then subtract the gate.
- $F = L + 2r - 2 = 4\pi + 16 - 2$, so $F \approx \mathbf{26.6}$ m.