

## 2. Area of part of a circle

$$1. \quad (a) \quad A = \frac{120 \times \pi \times 10^2}{360} - \frac{1}{2} \times 100 \times 10 \sin 12$$

$$= 104.72 - 43.30 = 61.42m^2$$

$$(b) \quad (ii) \quad \frac{120 \times 2 \times 10 \times 20}{360}$$

$$= 418.9m^2$$

$$(b) \quad \text{Total area} = 61.42 + 61.42 + 418.9$$

$$= 541.74m^2$$

$$\text{Cost} = 541.74 \times 310 = 167,939$$

$$2. \quad a) \quad \cos 54^\circ = \frac{x}{10}$$

$$X = 5.878$$

$$\therefore \text{size} = 2 \times 5.878 = 11.756$$

$$\text{Area of } \Delta = \frac{1}{2} \times 10^2 \sin 72^\circ = 47.55$$

$$\text{Total area of } \Delta s = 47.55 \times 5 = 237.8cm^2$$

$$b) \quad \text{Area of circle} = \frac{22}{7} \times 10 \times 10 = 314.8$$

$$\text{Shaded region} = \frac{3}{5} (3.143 - 237.8)$$

$$= 45.9cm^2$$

$$3. \quad (a) \quad 7.8^2 = 6.6^2 + 5.9^2 - 2 \times 6.6 \times 5.9 \cos R$$

$$\cos R = \frac{6.6^2 + 5.9^2 - 7.8^2}{2 \times 6.6 \times 5.9}$$

$$= \frac{78.37 - 60.84}{77.88}$$

$$= 0.2251$$

$$\angle R = 77^\circ$$

$$\frac{7.8}{\sin 77} = 2r$$

$$\sin 77$$

$$r = \frac{7.8}{2 \sin 77}$$

$$= 4 \text{ cm}$$

$$(b) \quad \frac{5.9}{\sin p} = \frac{7.8}{\sin 77}$$

$$\sin P = \frac{5.9 \sin 77}{7.8}$$

$$= 0.7370$$

$$\angle P = 47.5^\circ$$

$$\angle Q = 180 - (77 + 47.5) = 55.5^\circ$$

(c) Area of shaded region

$$= 3.142 \times 4^2 - \frac{1}{2} \times 6.6 \times 5.9 \sin 77$$

$$= 50.27 - 18.97 = 31.30$$

$$4. \quad ({}^{60}_{360}x^{22}_{7}x24x24) - ({}^{60}_{360}x^{22}_{7}x12x12)$$

$$301.71 - 75.43 = 226.26$$