

$$\begin{aligned}\text{area of trapezium} &= \frac{1}{2} (b_1 + b_2) h \\ &= \frac{1}{2} (1 + 2) \frac{\sqrt{3}}{2} \\ &= \frac{\sqrt{3}}{4} \times 3 \\ &= \frac{3\sqrt{3}}{4} \text{ cm}^2\end{aligned}$$

area of paper used

$$\begin{aligned}&= \text{ar}(\Delta I) + \text{ar}(\text{rect II}) + \text{ar}(\text{trap III}) \\ &\quad + \text{ar}(\Delta IV) + \text{ar}(\Delta V)\end{aligned}$$

$$= \frac{3}{4} \sqrt{11} + 6.5 + \frac{3\sqrt{3}}{4} + 4.5 + 4.5$$

$$= \frac{3}{4} \sqrt{11} + \frac{3\sqrt{3}}{4} + 15.5$$

$$= \frac{3\sqrt{11} + 3\sqrt{3} + 62}{4}$$

$$= \frac{3 \times 3.31 + 3 \times 1.73 + 62}{4}$$

$$= \frac{9.93 + 5.19 + 62}{4}$$

$$= \frac{77.12}{4}$$

$$= 19.28 \text{ cm}^2$$