Exercise 2

Paper 1 style · No calculator

2 5 marks SL 3.2 ●●○ Typical

In the triangle PQR, $PQ = 6$, $PR = 12$ and $Q\hat{P}R = 60°$.

(a) Find QR, giving your answer in the form $k\sqrt{3}$. **[3]**

(b) Find the exact area of the triangle PQR. **[2]**

The markscheme is on the next page: try the question first. Written and verified by a practising IB mathematics teacher, produced with AI assistance; solved twice and recomputed by software. Not affiliated with or endorsed by the International Baccalaureate Organization.
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MARKSCHEME (a)

$QR^2 = 6^2 + 12^2 - 2 \times 6 \times 12\cos 60°$ **M1**

$= 180 - 144 \times \frac{1}{2} = 108$ **A1**

$QR = 6\sqrt{3}$ **A1**

Total 3 marks

Note $\cos 60° = \frac{1}{2}$.

MARKSCHEME (b)

$\frac{1}{2} \times 6 \times 12 \times \frac{\sqrt{3}}{2}$ **M1**

$18\sqrt{3}$ **A1**

Total 2 marks