14. (a) Express $\sqrt{3} \sin x^\circ - \cos x^\circ$ in the form $k \sin(x-a)^\circ$, where $k > 0$ and $0 < a < 360$.

(b) Hence, or otherwise, sketch the graph with equation $y = \sqrt{3} \sin x^\circ - \cos x^\circ$, $0 \leq x \leq 360$.

Use the diagram provided in the answer booklet.

Answers

(a) $2\sin(x-30)^\circ$

(b) • $^5$ roots identifiable from graph
    • $^6$ coordinates of both turning points identifiable from graph
    • $^7$ $y$-intercept and value of $y$ at $x = 360$ identifiable from graph

| 30 and 210 | (120, 2) and (300, -2) | -1 |