Marked example 2

Paper 1 style · No calculator

2 5 marks SL 2.7 ●●○ Typical

The equation $kx^2 + 2x + k = 0$, where $k \neq 0$, has two distinct real roots.

(a) Find the possible values of k. **[5]**

MARKSCHEME (a)

$\Delta = 2^2 - 4 \times k \times k = 4 - 4k^2$ **(A1)**

$4 - 4k^2 > 0$ **M1**

$k^2 < 1$ **(A1)**

$-1 < k < 1$ **A1**

$k \neq 0$, because the equation must be quadratic **R1**

Total 5 marks

Note Final answer: $-1 < k < 0$ or $0 < k < 1$. Award M0 for $\Delta \geq 0$.

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