# Marked example 3

Paper 2 style · Graphic display calculator

## 3 7 marks SL 1.2 ●●○ Typical

The first row of a theatre has 20 seats. Each row has 3 more seats than the row in front of it.

(a) Find the number of seats in the 15th row. [2]

(b) Find the total number of seats in the first 15 rows. [2]

(c) The theatre must have at least 1000 seats. Find the least number of rows it needs. [3]

**MARKSCHEME (a)**

$20 + 14 \times 3$ (M1)

$= 62$ A1

Total 2 marks

**MARKSCHEME (b)**

$\frac{15}{2}(20 + 62)$ (M1)

$= 615$ A1

Total 2 marks

**MARKSCHEME (c)**

$\frac{n}{2}(40 + 3(n-1)) \geq 1000$ M1

$n \geq 20.4 \quad (20.379\ldots)$ (A1)

21 rows A1

Total 3 marks

**Note** Or $S_{20} = 970$ and $S_{21} = 1050$.



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