Marked example 1

Paper 2 style · Graphic display calculator

1 6 marks SL 4.9 ●○○ Routine

The heights of adults in a town are normally distributed with mean 170 cm and standard deviation 8 cm.

(a) Find the probability that an adult chosen at random is shorter than 180 cm. **[2]**

(b) Find the probability that an adult chosen at random is between 160 cm and 175 cm tall. **[2]**

(c) In a group of 500 adults, find the expected number who are taller than 185 cm. **[2]**

MARKSCHEME (a)

$X \sim N(170, 8^2),\ P(X < 180)$ **(M1)**

$0.894\ \ (0.894350\ldots)$ **A1**

Total 2 marks

MARKSCHEME (b)

$P(160 < X < 175)$ **(M1)**

$0.628\ \ (0.628364\ldots)$ **A1**

Total 2 marks

MARKSCHEME (c)

$P(X > 185) = 0.0303963\ldots$ **(A1)**

$500 \times 0.0303963\ldots = 15.2$ **A1**

Total 2 marks

Note An expected number may be a decimal.

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