

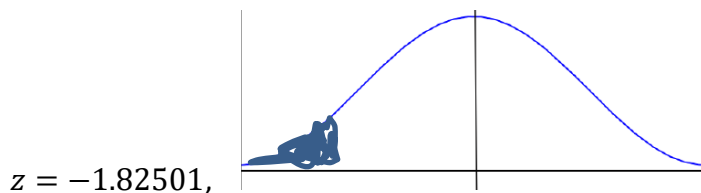
1. The weights,  $C$ , of freshly picked cantaloupes in California are normally distributed with a mean  $1.48 \text{ kg}$  and a standard deviation  $0.62 \text{ kg}$ . A cantaloupe is considered too small if it weighs less than  $c \text{ kg}$ .

(a) Given that 3.4% of freshly picked cantaloupes are too small at harvest, find  $c$ . (3 marks)

(b) A cantaloupe is too small. Find the probability that it weighs at least  $0.25 \text{ kg}$ . (3 marks)

Mark scheme:

(a) Valid approach (M1)



$$-1.82501 = \frac{c - 1.48}{0.62}$$

$$c = 0.35 \text{ kg} \quad (\text{A2})$$

(b)  $0.034 - P(x \leq 0.25) = 0.01037$  (A1)

$$\frac{P(0.25 \leq x \leq c)}{P(x \leq c)} \quad (\text{M1})$$

$$= \frac{0.01037}{0.034}$$

$$= 0.30485$$

$$= 0.305 \quad (\text{A1})$$