

- The random variable X has the distribution $N(-3, \sigma^2)$. The probability that a randomly chosen value of X is positive is 0.25.

(i) Find the value of σ .

[3]

This image shows a full page of white paper with ten horizontal dashed lines, evenly spaced from top to bottom. These lines are typical of primary-ruled notebook paper used for teaching handwriting or basic writing skills. There are no margins, text, or other markings on the page.

(ii) Find the probability that, of 8 random values of X , fewer than 2 will be positive.

[3]

This image shows a single sheet of white paper with ten evenly spaced horizontal dotted lines, typical of primary school writing paper. The lines are black and extend across the full width of the page. There is no handwriting or other markings on the paper.