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5. The random variable X has a normal distribution with mean 10 and standard deviation 6

(a) Find $P(X < 7)$

(3)

(b) Find the value of k such that

$$P(10 - k < X < 10 + k) = 0.60$$

(3)

A single observation x, of X, is to be taken.
A rectangle is drawn on a centimetre grid with vertices having coordinates (0, 0), (x, 0), (x, $x - 3$) and (0, $x - 3$)

(c) Find the probability that the area of this rectangle is more than 40 cm^2

(8)

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Question 5 continued

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Q5