HL SL

The amount of caffeine, ***X*** in mg, found in a cup of tea can be modelled by the normal distribution $X \sim N(26, 5)$

a) Find the probability that a randomly selected cup of tea contains at least 27 mg of caffeine.

b) 10 cups of tea are randomly selected. Find the probability that more than 5 of these cups has at least 24 mg of caffeine.

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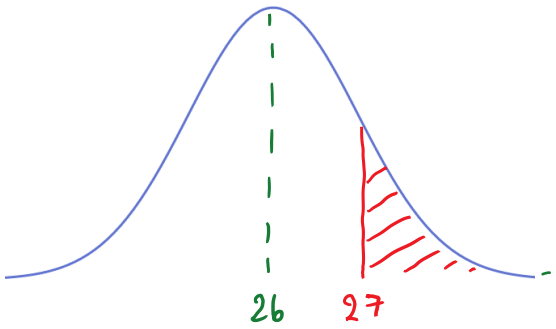
a) Lower = 27 Upper = 9×10^{99} Standard deviation =$\sqrt{5}$ Mean = 26 $P(X > 27) \approx 0.327$ {a higher degree of accuracy of this value will be used in the next part of the question}	
b) This question becomes one about the Binomial Distribution. n = 10 p= 0.32736 Let Y be number of cups of tea that have at least 27 mg of caffeine. $Y \sim B(10, 0.32736)$ $P(Y \geq 6) \approx 0.0706$	