

- (i) Find the value of σ .

[3]

New technology has resulted in a new type of light bulb. It is found that on average one in five of these new light bulbs has a lifetime of more than 2500 hours.

- (ii) For a random selection of 300 of these new light bulbs, use a suitable approximate distribution to find the probability that fewer than 70 have a lifetime of more than 2500 hours. [4]

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- (iii) Justify the use of your approximate distribution in part (ii). [1]

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