

IB Statistics and Probability Problem 013

The mass M of apples, in grams, is normally distributed with mean μ .

The following table shows probabilities for values of M .

Valeurs de M	$M < 93$	$93 \leq M \leq 119$	$M > 119$
$P(X)$	k	0.98	0.01

A.

i. Write down the value of k .

ii Show that $\mu = 106$.

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B. Find $P(M < 95)$.

Apples are packed in bags of ten. Any apple with a mass less than 95 g is classified as small.

C. Find the probability that a randomly chosen bag of apples contains at most one small apple.

D. A crate contains 50 bags of apples. A crate is chosen at random.

i. Find the expected number of bags in this crate that contain at most one small apple.

ii Find the probability that at least 48 bags in this crate contain at most one small apple.

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