8. The number of claims, N, made on an insurance portfolio follows the following distribution:

n	$\Pr(N=n)$
0	0.7
2	0.2
3	0.1

If a claim occurs, the benefit is 0 or 10 with probability 0.8 and 0.2, respectively.

The number of claims and the benefit for each claim are independent.

Calculate the probability that aggregate benefits will exceed expected benefits by more than 2 standard deviations.

(A) 0.02

(B) 0.05

(C) 0.07

(D) 0.09

(E) 0.12

16. You are given:

	Mean	Standard Deviation
Number of Claims	8	3
Individual Losses	10,000	3,937

Using the normal approximation, determine the probability that the aggregate loss will exceed 150% of the expected loss.

(A) $\Phi(1.25)$

(B) $\Phi(1.5)$

(C) $1-\Phi(1.25)$

(D) $1-\Phi(1.5)$

(E) $1.5\,\Phi(1)$

32. For an individual over 65:

(i) The number of pharmacy claims is a Poisson random variable with mean 25.

(ii) The amount of each pharmacy claim is uniformly distributed between 5 and 95.

(iii) The amounts of the claims and the number of claims are mutually independent.

Determine the probability that aggregate claims for this individual will exceed 2000 using the
normal approximation.

(A) $1-\Phi(1.33)$

(B) $1-\Phi(1.66)$

(C) $1-\Phi(2.33)$

(D) $1-\Phi(2.66)$

(E) $1-\Phi(3.33)$