

1. Nov/2022/Paper 9709 61/No.4

Each month a company sells X kg of brown sugar and Y kg of white sugar, where X and Y have the independent distributions $N(2500, 120^2)$ and $N(3700, 130^2)$ respectively.

(a) Find the mean and standard deviation of the total amount of sugar that the company sells in 3 randomly chosen months. [3]

The company makes a profit of \$1.50 per kilogram of brown sugar sold and makes a loss of \$0.20 per kilogram of white sugar sold.

(b) Find the probability that, in a randomly chosen month, the total profit is less than \$3000. [5]

2. Nov/2022/Paper_9709_62/No.6

The masses, in grams, of small and large bags of flour have the distributions $N(510, 100)$ and $N(1015, 324)$ respectively. André selects 4 small bags of flour and 2 large bags of flour at random.

(a) Find the probability that the total mass of these 6 bags of flour is less than 4130 g. [5]

(b) Find the probability that the total mass of the 4 small bags is more than the total mass of the 2 large bags. [5]

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