Problem of the Week

Problem E

Mixture of Three

Kanza is making and selling trail mix. She makes three different blends, each consisting of a mixture of cashews, dark chocolate, and almonds. All of these blends are sold at the same price of $18 per kg.

If she mixes cashews, dark chocolate, and almonds in the ratio of $1 : 1 : 1$, by mass, then she makes a profit of $20\%$.

If she mixes cashews, dark chocolate, and almonds in the ratio of $3 : 2 : 1$, by mass, then she makes a profit of $8\%$.

If she mixes cashews, dark chocolate, and almonds in the ratio of $1 : 4 : 2$, by mass, then she makes a profit of $26\%$.

(a) What price, in dollars per kg, does Kanza pay for each of the cashews, dark chocolate, and almonds?

(b) What percentage of a profit would she make if she mixes cashews, dark chocolate, and almonds in the ratio of $2 : 3 : 4$, by mass?