4.8.7

To predict the probability that a company will issue a divident this year that its percentage was $x=4$ and you use Baye's theorem.

Let's assume the dividend to be D and no-dividend to be ND

We need to calculate the probabiity. From the previous ~~fun~~ question we get the seveirty function as follows.

$$P(4) = \frac{\frac{1}{\sqrt{2\pi\sigma^2}} \times \exp\left[-\frac{1}{2\sigma_k^2}(x-\mu_k)^2\right]}{\sum_{k=1}^{K} \pi_k \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left[\frac{-1}{2\sigma_k^2} \times (x-\mu_k)^2\right]}$$

Now, we have to substitute the following values from the above given ~~equation~~ into the above equation; we get. question

$$0.80 \times \exp\left[\frac{-1}{2.36} \times (4-10)^2\right]$$

$$P(4) =$$

$$\frac{0.80 \times \exp\left[\frac{-1}{2.36} \times (4-10)^2\right] + 0.20 \times \exp\left[\frac{-1}{2.36}(4-0)^2\right]}{}$$

$\therefore$ on solving the above equation, we get

$P(4) = 0.7519$ [around 75% probability]