Problem 4.4-16

Given that $X$ is distributed as $N(21.37, 0.16)$, we have

a. $X$ is the weight of a single mint, then

$$P(X > 22.07) = P \left( Z > \frac{22.07 - \mu}{\sigma} \right)$$
$$= P \left( Z > \frac{22.07 - 21.37}{\sqrt{0.16}} \right)$$
$$= P(Z > 1.75)$$
$$= 0.0401$$

from Table Vb.

b. $X$ is the weight of a single mint, then

$$P(X < 20.857) = P \left( Z < \frac{20.857 - \mu}{\sigma} \right)$$
$$= P \left( Z < \frac{20.857 - 21.37}{\sqrt{0.16}} \right)$$
$$= P(Z < -1.28)$$
$$= 1 - P(Z < 1.2825)$$
$$= 1 - .9000$$
$$= 0.10$$

from Table Va.

$Y$ is the number of successes and so is binomially distributed.

$$P(Y \leq 2) = 0.8159$$

from Table II.