1155144002 PRINCIPE Jericho Bibat

$X = X_1 + \ldots + X_{1000}$

$E[X] = 1000 \cdot E[X_i] = 1000 \cdot (2 \cdot 25\% + 5 \cdot 20\% + 10 \cdot 5\%)$

$\qquad\qquad = 1000 \cdot 2$

$\qquad\qquad = 2000$

$Var[X] = 1000 Var[X_i] = 1000(25\% \cdot 2^2 + 20\% \cdot 5^2 + 5\% \cdot 10^2) - 2^2)$

$\qquad\qquad = 1000 \cdot 7$

$\qquad\qquad = 7000$

~~$P(x \geq 400) = P(E[X] = N\sqrt{Var[X]}$~~

$\therefore P(X \geq 400) = P\left(E[X] + N\sqrt{Var[X]} \geq 400\right)$

$\qquad\qquad = P(2000 + N\sqrt{7000} \geq 400)$

$\qquad\qquad \approx P(Normal(0,1) \geq -19.12)$

$\qquad\qquad \approx 1$