

81. Solution: C

Let X_1, \dots, X_{25} denote the 25 collision claims, and let $\bar{X} = \frac{1}{25}(X_1 + \dots + X_{25})$. We are given that each X_i ($i = 1, \dots, 25$) follows a normal distribution with mean 19,400 and standard deviation 5000. As a result \bar{X} also follows a normal distribution with mean 19,400 and standard deviation $\frac{1}{\sqrt{25}}(5000) = 1000$. We conclude that $P[\bar{X} > 20,000]$

$$= P\left[\frac{\bar{X} - 19,400}{1000} > \frac{20,000 - 19,400}{1000}\right] = P\left[\frac{\bar{X} - 19,400}{1000} > 0.6\right] = 1 - \Phi(0.6) = 1 - 0.7257$$

$= 0.2743$.