



Faisal Shahzad, 30, a United States naturalized citizen from Pakistan, pleaded guilty to a failed attempt to explode a car bomb in Times Square in New York City in May 2010. Shahzad was sentenced to life in prison. (Songquan Deng/Shutterstock.)  $z$  - value 1.645 Faisal Shahzad, 30, a United States naturalized citizen from Pakistan, pleaded guilty to a failed attempt to explode a car bomb in Times Square in New York City in May 2010. Shahzad was sentenced to life in prison. (Songquan Deng/Shutterstock.)

$$P(ppf) = (0.8)(0.8)(0.2) = 0.128$$

$$(1) f(x_i) \geq 0$$

$$(2) \sum_{i=1}^n f(x_i) = 1$$

$$(3) f(x_i) = P(X = x_i)$$

$$f(x) = \{0.038, , , x, =, , 1, 0.102, , , x, =, , 2, 0.172, , , x, =, , 3, 0.204, , , x, =, , 4, 0.174, , , x, =, , 5, 0.124, , , x, =, , 6, 0.076, , , x, =, , 7, 0.038, , , x, =, , 8\}$$

$$\text{Formula 1: } \begin{equation} \label{Formula1.Label} P(\Omega) = \int_{-\infty}^{+\infty} f(x) \, dx = 1 \end{equation}$$

$$\text{Formula 2: } \begin{equation} \label{Formula2.Label} E(X) := \int_{-\infty}^{+\infty} x \, f(x) \, dx \end{equation}$$

$$\text{A third one, with references to 1 and 2: } \begin{equation} \begin{array}{l} E(aX + b) = \int_{-\infty}^{+\infty} (ax + b) f(x) \, dx \\ \quad \quad \quad \& = a \int_{-\infty}^{+\infty} x f(x) \, dx + b \int_{-\infty}^{+\infty} f(x) \, dx \\ \quad \quad \quad \& \underset{\{\text{\ref{Formula1.Label}}, \text{\ref{Formula2.Label}}\}}{=} a E(X) + b \end{array} \end{equation}$$

$$\text{And another one: } \begin{equation} V(X) = \frac{a^2 + b^2 + c^2 - ab - ac - bc}{18} \end{equation}$$