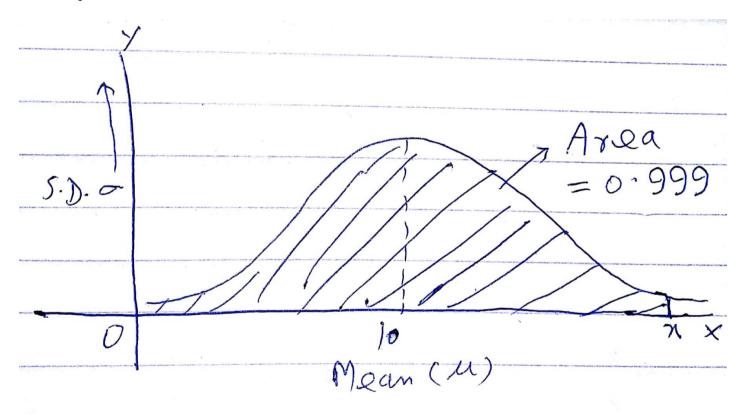
ANSWER to Question #84097 – Math – Statistics and Probability

We know that if random variable

$$\begin{split} X &\square N(\mu, \sigma^2) then \ Z = \frac{X - \mu}{\sigma} \square N(0, 1) \\ given \ height \ H &\square \ N(10, 1.5^2) then \ Z = \frac{H - 10}{1.5} \square \ N(0, 1) \\ Let \ P(H \le x) = 0.999 \\ \Rightarrow P\left(Z = \frac{H - 10}{1.5} \le \frac{x - 10}{1.5}\right) = 0.999 \\ from \ normal \ table \\ P(Z \le 3.09) = 0.999 \\ \Rightarrow \frac{x - 10}{1.5} = 3.09 \ \Rightarrow x = 10 + 1.5 \times 3.09 = 14.635 \ ft \end{split}$$

Hence required clearance D = 14.635 ft



Answer provided by https://www.AssignmentExpert.com