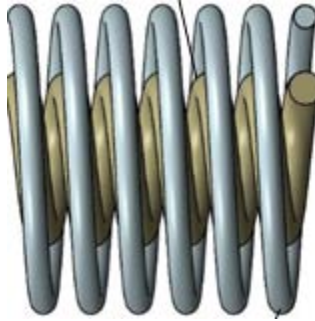


A spring constant changes uniformly between 400 N/m and 450 N/m.

- (1) Find the PDF and CDF of the spring constant.
- (2) What is the probability that the spring constant is greater than 440 N/m?
- (3) If the spring is stretched by 1 cm, what is the probability that the spring force is smaller than 4.3 N?



Solution

(1) PDF:

$$f(x) = \frac{1}{50}$$

where $400 \leq x \leq 450$.

CDF:

$$F(x) = \frac{x - 400}{50}$$

where $400 \leq x \leq 450$.

(2) $\Pr(X > 440) = 0.2$

(3) $\Pr(F_s < 4.3) = 0.6$