



Lesson 6-7 Probability

- 1- Find a value of c for which $f(x)$ is a pdf on the indicated interval.

$$f(x) = cx + x^2, \quad [0,1]$$

- A- 4
B- 3
C- $\frac{4}{3}$
D- 1.5

- 2- Find a value of c for which $f(x)$ is a pdf on the indicated interval.

$$f(x) = 2ce^{-cx}, \quad [0,2]$$

- A- $\ln 2$
B- $0.5\ln 2$
C- $2\ln 2$
D- $\ln 4$

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- 3- Find a value of c for which $f(x)$ is a pdf on the indicated interval.

$$f(x) = \frac{c}{1+x^2}, \quad [0,1]$$

- A- $\frac{4}{\pi}$
B- $\frac{\pi}{4}$
C- π
D- 1.7

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- 4- find a value of c for which $f(x)$ is a pdf on the indicated interval.

$$f(x) = \frac{c}{\sqrt{1-x^2}}, \quad [0,1]$$

- A- 1.9
B- π
C- $\frac{2}{\pi}$
D- $\frac{\pi}{2}$



5- Suppose that $f(x) = \frac{0.4}{\sqrt{2\pi}} e^{-0.08(x-68)^2}$ is pdf, find the probability that a randomly selected American male has height in the Between 6 ft 6 in and 6 ft 10 in.

- A- 0.0031661
- B- 0.00068634
- C- 0.0032661
- D- 0.00067634

6- Suppose that $f(x) = \frac{0.4}{\sqrt{2\pi}} e^{-0.08(x-68)^2}$ is pdf, find the probability that a randomly selected American male has height in the Between 2 ft and 5 ft.

- A- 0.00068724
- B- 0.00687143
- C- 0.00068714
- D- 0.00067714

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7- Find the indicated probabilities, given that the lifetime of a lightbulb is exponentially distributed with pdf $f(x) = 6e^{-6x}$ (with x measured in years).

The lightbulb lasts less than 3 months.

- A- 0.97687
- B- 1.77687
- C- 0.87767
- D- 0.77687

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8- Find the indicated probabilities, given that the lifetime of a lightbulb is exponentially distributed with pdf $f(x) = 6e^{-6x}$ (with x measured in years).

The lightbulb lasts between 3 and 10 years.

- A- 1.52300×10^{-5}
- B- 1.52300×10^{-7}
- C- 1.52300×10^{-6}
- D- 1.52300×10^{-8}



9- Find (a) the mean and (b) the median of the random variable with the given pdf.

$$f(x) = 3x^2, \quad [0,1]$$

- A- (a)0.95 (b)0.7937
 B- (a)0.75 (b)0.7937
 C- (a)0.75 (b)0.8937
 D- (a)0.95 (b)0.9937

10- Find (a) the mean and (b) the median of the random variable with the given pdf.

$$f(x) = \frac{\pi}{1+x^2}, \quad [0,1]$$

- A- (a)0.4413 (b)0.4142
 B- (a)0.4413 (b)0.5142
 C- (a)0.5413 (b)0.4142
 D- (a)0.5413 (b)0.5142

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11- Find (a) the mean and (b) the median of the random variable with the given pdf.

$$f(x) = \frac{1}{2} \sin x, \quad [0, \pi]$$

- A- (a) π (b)1.57
 B- (a) $\frac{\pi}{2}$ (b)1.57
 C- (a) $\frac{2}{\pi}$ (b)1.57
 D- (a) $\frac{\pi}{2}$ (b)1.87

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12- Find (a) the mean and (b) the median of the random variable with the given pdf.

$$f(x) = \cos x, \quad [0, \frac{\pi}{2}]$$

- A- (a)1.57080 (b)0.5236
 B- (a)0.57080 (b)1.5236
 C- (a)0.77080 (b)0.7236
 D- (a)0.57080 (b)0.5236