

# PRINTABLE VERSION

## Quiz 7

You scored 100 out of 100

### Question 1

Your answer is CORRECT.

Think about a density curve that consists of two line segments. The first goes from the point (0, 1) to the point (0.4, 1). The second goes from (0.4, 1) to (0.8, 2) in the xy-plane. What percent of observations fall between 0.4 and 0.8?

- a) ☐ 0.40
- b) ☐ 1.00
- c) ☒ 0.60
- d) ☐ 0.05
- e) ☐ 0.50
- f) ☐ None of the above

### Question 2

Your answer is CORRECT.

Consider a spinner that, after a spin, will point to a number between zero and 1 with “uniform probability”. Determine the probability:  $P(\frac{1}{5} \leq X \leq \frac{17}{35})$ .

- a) ☐ 0.71
- b) ☐ 0.20
- c) ☐ 0.49
- d) ☒ 0.29
- e) ☐ 1.00
- f) ☐ None of the above

### Question 3

Your answer is CORRECT.

Suppose that the length  $X$  of the life (in years) of a battery for a computer has a distribution that can be described by the pdf:

$$f(x) = \frac{4x}{81} e^{-\frac{2x^2}{81}}$$

Determine the probability that the battery fails before the one year warranty expires on the computer.

- a) ☐ 0.2244
- b) ☐ 0.1482
- c) ☒ 0.0244
- d) ☐ 0.9756
- e) ☐ 0.0482
- f) ☐ None of the above

#### Question 4

Your answer is CORRECT.

Let  $X$  be the amount of time (in hours) the wait is to get a table at a restaurant. Suppose the cdf is represented by

$$F(x) = \begin{cases} 0 & x < 0 \\ \frac{x^2}{36} & 0 \leq x \leq 6 \\ 1 & x > 6 \end{cases}$$

Use the cdf to determine  $P(X \leq 2)$ .

- a) ☒ 0.1111
- b) ☐ 0.8889
- c) ☐ 0.3111
- d) ☐ 0.0741
- e) ☐ 0.1741
- f) ☐ None of the above

#### Question 5

Your answer is CORRECT.

Let  $X$  be the amount of time (in hours) the wait is to get a table at a restaurant. Suppose the cdf is represented by

$$F(x) = \begin{cases} 0 & x < 0 \\ \frac{x^2}{4} & 0 \leq x \leq 2 \\ 1 & x > 2 \end{cases}$$

Use the cdf to determine  $P(0.75 \leq X \leq 1)$ .

- a) ☐ 0.2500
- b) ☐ 0.8906
- c) ☐ 0.0241
- d) ☒ 0.1094
- e) ☐ 0.0482
- f) ☐ None of the above

### Question 6

Your answer is CORRECT.

Let X be the amount of time (in hours) the wait is to get a table at a restaurant. Suppose the cdf is represented by

$$F(x) = \begin{cases} 0 & x < 0 \\ \frac{x^3}{8} & 0 \leq x \leq 2 \\ 1 & x > 2 \end{cases}$$

Use the cdf to determine  $P(X \geq \frac{2}{3})$ .

- a) ☒ 0.9630
- b) ☐ 0.9958
- c) ☐ 0.0214
- d) ☐ 0.0370
- e) ☐ 0.4979
- f) ☐ None of the above

### Question 7

Your answer is CORRECT.

Let X be the amount of time (in hours) the wait is to get a table at a restaurant. Suppose the cdf is represented by

$$F(x) = \begin{cases} 0 & x < 0 \\ \frac{x^2}{9} & 0 \leq x \leq 3 \\ 1 & x > 3 \end{cases}$$

Use the cdf to determine  $E[X]$ .

- a) ☐ 4.00
- b) ☐ 3.00
- c) ☒ 2.00
- d) ☐ 1.50
- e) ☐ 1.00
- f) ☐ None of the above

### Question 8

Your answer is CORRECT.

Let  $X$  be the amount of time (in hours) the wait is to get a table at a restaurant. Suppose the cdf is represented by

$$F(x) = \begin{cases} 0 & x < 0 \\ \frac{x^3}{8} & 0 \leq x \leq 2 \\ 1 & x > 2 \end{cases}$$

Use the cdf to determine  $\sigma_X$ .

- a) ☐ 0.1500
- b) ☐ 0.9487
- c) ☐ 0.9000
- d) ☒ 0.3873
- e) ☐ 1.3873
- f) ☐ None of the above

### Question 9

Your answer is CORRECT.

Suppose the time a child spends waiting at for the bus as a school bus stop is exponentially distributed with mean 6 minutes. Determine the probability that the child must wait at least 7 minutes on the bus on a given morning.

- a) ☐ 0.6114
- b) ☒ 0.3114
- c) ☐ 0.6228
- d) ☐ 0.5114
- e) ☐ 0.1886
- f) ☐ None of the above

**Question 10**

**Your answer is CORRECT.**

Suppose the time a child spends waiting at for the bus as a school bus stop is exponentially distributed with mean 4 minutes. Determine the probability that the child must wait between 2 and 3 minutes on the bus on a given morning.

- a) ☐ 0.8658
- b) ☐ 0.3342
- c) ☐ 0.3658
- d) ☒ 0.1342
- e) ☐ 0.6065
- f) ☐ None of the above