

Elementary Statistics

Name: \_\_\_\_\_

Study Guide 17

Class: \_\_\_\_\_

Due Date: \_\_\_\_\_

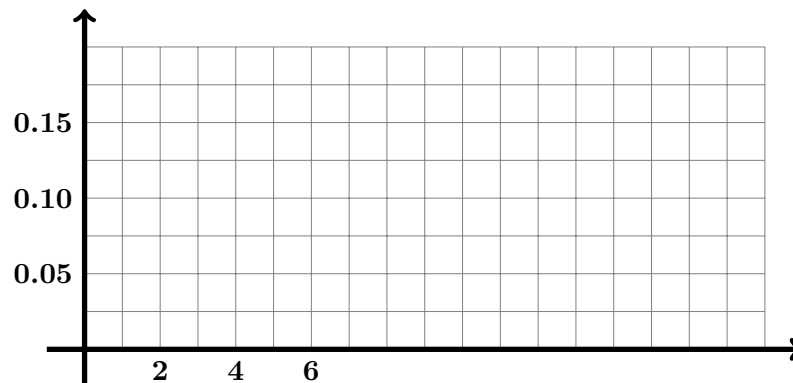
Score: \_\_\_\_\_

**Your solutions must be consistent with class notes & resources.**

Be Neat, Organized, and No Work  $\Leftrightarrow$  No Points

1. Let  $x$  be a continuous random variable with a uniform distribution such that  $4 \leq x \leq 14$ .

(a) (2 points) Draw the uniform distribution below. Clearly mark.



(b) (1 point) Find  $P(x = 10)$  .

(b) \_\_\_\_\_

(c) (2 points) Find  $P(x > 10.75)$  .

(c) \_\_\_\_\_

(d) (2 points) Find  $P(5.75 < x < 8.25)$  .

(d) \_\_\_\_\_

- (e) (4 points) Find  $x_1$  and  $x_2$  such that the middle area for this uniform distribution  $x_1$  and  $x_2$  is 0.8, that is  $P(x_1 < x < x_2) = .8$ .

(e) \_\_\_\_\_

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2. The city bus arrives at the college every 15 minutes and the wait time for passengers is described by a uniform probability distribution.

Complete drawing, labeling, and shading required.

Find the probability that any randomly selected passenger has a wait time

- (a) (3 points) less than 3 minutes to catch a bus.

(a) \_\_\_\_\_

- (b) (3 points) more than 10 minutes to catch a bus.

(b) \_\_\_\_\_

- (c) (3 points) between 2.5 and 5 minutes to catch a bus.

(c) \_\_\_\_\_

- (d) (3 points) Find the wait time that separates the top 5% from the rest. Round your answer to the nearest whole minute.

(d) \_\_\_\_\_

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3. Assume standard normal distribution, find

**Drawing, Labeling, Shading & Full TI Command Required.**

(a) (1 point)  $P(z = 1.5)$ .

(a) \_\_\_\_\_

(b) (3 points)  $P(1.25 < z < 2.25)$ .

(b) \_\_\_\_\_

(c) (3 points) Find  $P(z > 1)$ .

(c) \_\_\_\_\_

(d) (3 points) Find  $P(z < -1)$ .

(d) \_\_\_\_\_

(e) (3 points) Find  $P(z < -1.96 \text{ or } z > 1.96)$ .

(e) \_\_\_\_\_

(f) (2 points) Find  $P(z < -1.645 \text{ and } z > 1.645)$ .

(f) \_\_\_\_\_

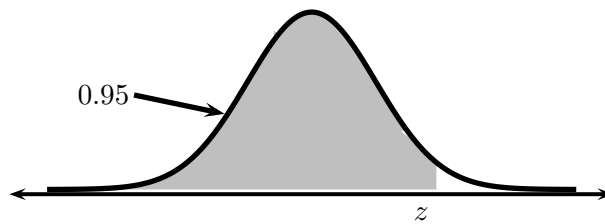
(g) (3 points) Find  $k$  such that  $P(z < k) = 0.05$ .

(g) \_\_\_\_\_

(h) (3 points) Find  $z = Q_3$ .

(h) \_\_\_\_\_

(i) (2 points) Find the value of  $z$ .



(i) \_\_\_\_\_

(j) (4 points) Find two  $z$  values that separate the middle 98% from the rest.

(j) \_\_\_\_\_

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***Research shows 65% of students are visual learners.***