

Elementary Statistics

Name: _____

Study Guide 18

Class: _____

Due Date: _____

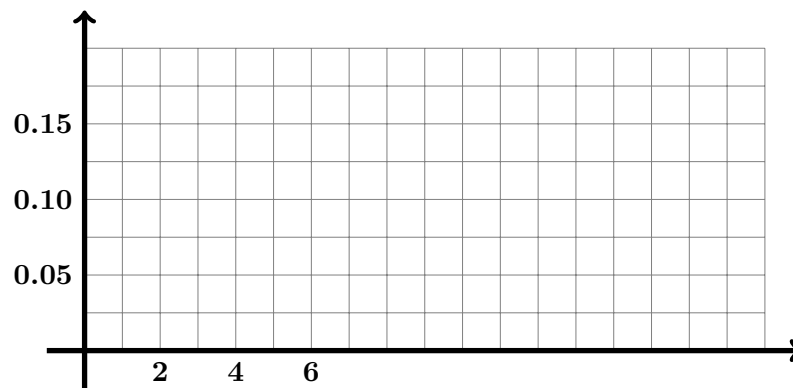
Score: _____

No Work \Leftrightarrow No Points

Use Pencil Only \Leftrightarrow Be Neat & Organized

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) _____

2. Assume standard normal distribution. Drawing & Shading Required.

- (a) (2 points) $P(1.25 < z < 2.25)$.

(a) _____

- (b) (2 points) Find $P(z > 1)$.

(b) _____

- (c) (2 points) Find $P(z < -1)$.

(c) _____

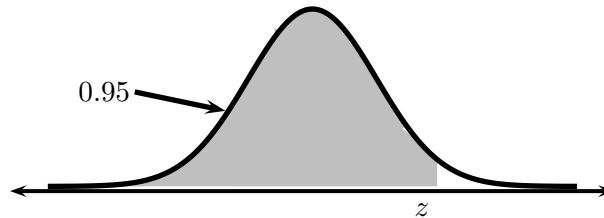
- (d) (3 points) Find $P(z < -1.96 \text{ or } z > 1.96)$.

(d) _____

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

(e) _____

(f) (2 points) Find the value of z .



(f) _____

3. Assume normal distribution with $\mu = 120$ and $\sigma = 8$. Find the following probabilities. Drawing & Shading Required.

(a) (2 points) $P(115 < x < 125)$.

(a) _____

(b) (2 points) Find $P(x > 126)$.

(b) _____

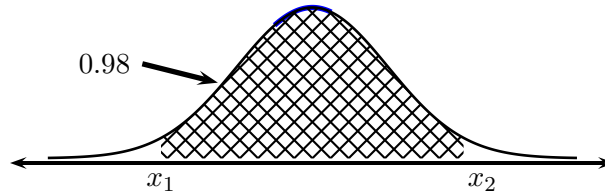
(c) (2 points) Find $P(x < 100)$.

(c) _____

(d) (3 points) Find k such that $P(x > k) = 0.20$.

(d) _____

- (e) (4 points) Find x_1 and x_2 , rounded to a whole number, such that the middle area under the curve between x_1 and x_2 is 0.98, that is $P(x_1 < x < x_2) = .98$.



(e) _____

4. The heights of college students are normally distributed with a mean of 68.5 inches and a standard deviation of 2.7 inches. Find the probability that any randomly selected student has a height

(a) (3 points) less than 63.2 inches.

(a) _____

(b) (3 points) greater than 72.8 inches.

(b) _____

(c) (3 points) between 63.2 and 72.8 inches.

(c) _____

(d) (3 points) Find the height that separates the top 10% from the rest. Round your answer to the nearest whole inch.

(d) _____