PRINTABLE VERSION

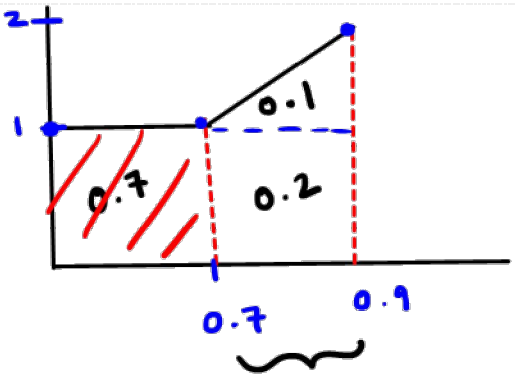
Quiz 5

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 (0.7, 1). The second goes from (0.7, 1) to (0.9, 2) in the xy-plane. What percent of observations fall below 0.70?



a) 0.35

b) 0.15

c) 0.30

d) 1.00

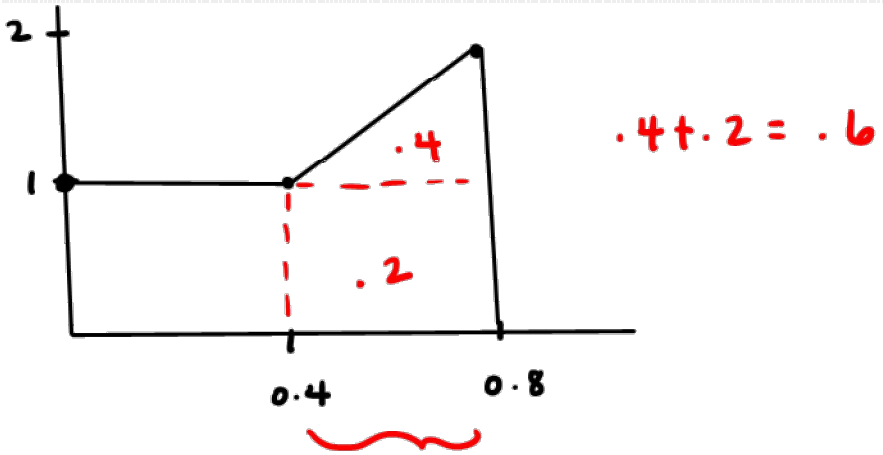
e) 0.70

f) None of the above

Question 2

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) 0.50

b) 0.05

c) 0.60

d) 0.40

e) 1.00

f) None of the above

Question 3

Your answer is CORRECT.

Consider a uniform density curve defined from x = 0 to x = 6. What percent of observations fall below 5?

a) 0.20

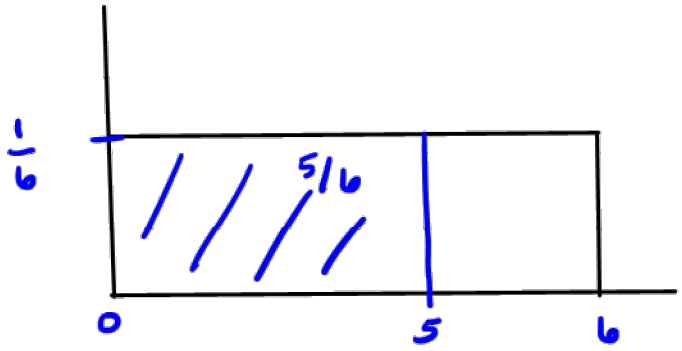
b) 0.95

c) 0.83

d) 0.17

e) 0.50

f) None of the above



$A = (5)\left(\frac{1}{6}\right) = .83$

Question 4

Your answer is CORRECT.

Consider a uniform density curve defined from x = 0 to x = 6. What percent of observations fall between 1 and 5?

a) 0.17

b) 0.67

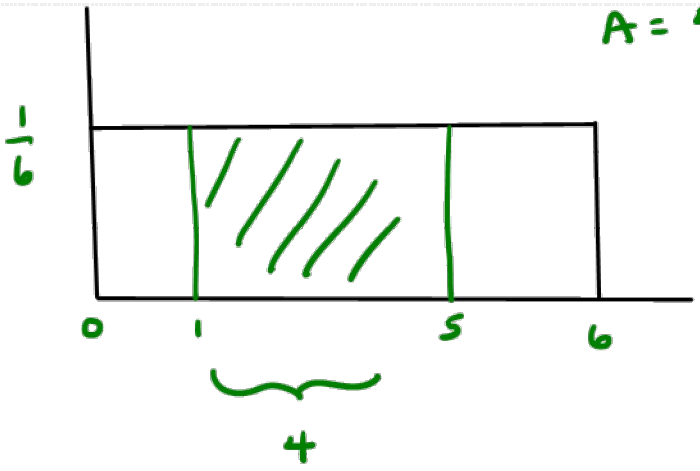
c) 0.79

d) 0.83

e) 0.20

f) None of the above

$A = 4\left(\frac{1}{6}\right) = .67$



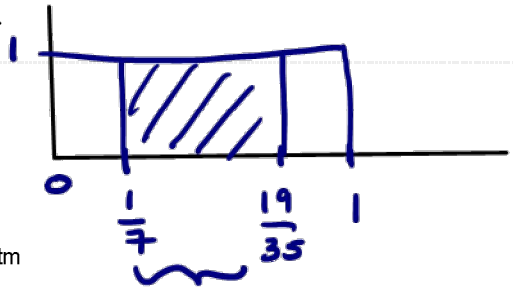
Question 5

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: $P(1/7 \le X \le 19/35)$.

a) 0.40

b) 0.54



c) 0.60

$A = (1)(2/5) = 0.4$

d) 1.00

e) 0.14

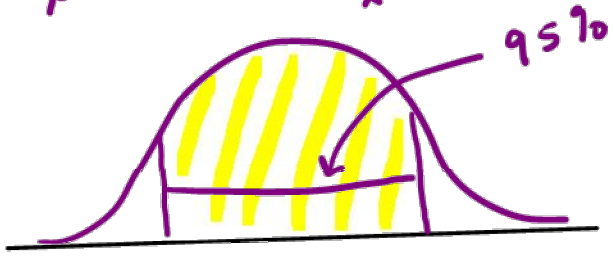
f) None of the above

Question 6

Your answer is CORRECT.

The heights of students in a class are normally distributed with mean 66 inches and standard deviation 5 inches. Use the Empirical Rule to determine the interval that contains the middle 95% of the heights.

$\mu = 66 \quad \sigma_x = 5$



[56, 76]

a) [61, 71]

b) [53, 79]

c) [51, 71]

d) [51, 81]

e) [56, 76]

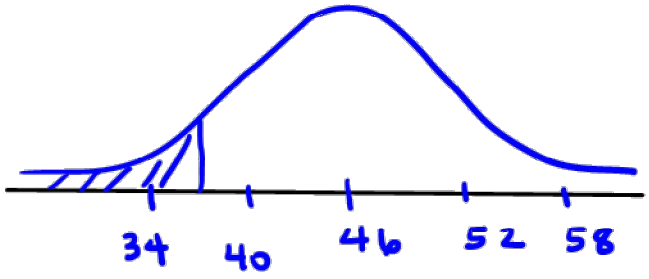
f) None of the above

Question 7

Your answer is CORRECT.

The length of time needed to complete a certain test is normally distributed with mean 46 minutes and standard deviation 6 minutes. Find the probability that it will take less than 37 minutes to complete the test.

$\mu = 46 \quad \sigma_x = 6$



a) 0.9332

b) 0.0668

c) 0.9666

d) 0.5000

e) 0.0334

f) None of the above

$P(X < 37) = \text{pnorm}(37, 46, 6)$

$= \text{normalcdf}(-10000, 37, 46, 6)$

Question 8

Your answer is CORRECT.

If X is normally distributed with a mean of 20 and a standard deviation of 2, find $P(20 \le X \le 22.6)$.

$P(20 \le x \le 22.6) = pnorm(22.6, 20, 2) - pnorm(20, 20, 2)$

$= normalcdf(20, 22.6, 20, 2)$

$= 0.403$

a) 0.903

b) 0.503

c) 0.703

d) 0.403

e) 0.603

f) None of the above

Question 9

Your answer is CORRECT.

Suppose that X is normally distributed with a mean of 50 and a standard deviation of 12. What is $P(X \ge 74.96)$?

$P(x \ge 74.96) = 1 - pnorm(74.96, 50, 12)$

$= normalcdf(74.96, 10000, 50, 12)$

$= 0.019$

a) 0.481

b) 0.019

c) 0.981

d) 0.024

e) 0.020

f) None of the above

Question 10

Your answer is CORRECT.

Suppose that x is normally distributed with a mean of 50 and a standard deviation of 10. What is $P(x \le 74.50)$?

$P(x \le 74.50) = pnorm(74.50, 50, 10)$

$= normalcdf(-1000, 74.50, 50, 10)$

$= 0.993$

a) 0.496

b) 0.493

c) 0.007

d) 0.993

e) 0.995

f) None of the above

Question 11

Your answer is CORRECT.

Suppose that x is normally distributed with a mean of 20 and a standard deviation of 3. What is $P(16.91 \le x \le 24.59)$?

$P(16.91 \le x \le 24.59) = pnorm(24.59, 20, 3) - pnorm(16.91, 20, 3)$

$= normalcdf(16.91, 24.59, 20, 3)$

$= 0.785$

a) 0.348

b) 0.438

c) 0.353

d) 0.437

e) 0.785

f) None of the above

Question 12

Your answer is CORRECT.

At a college the scores on the chemistry final exam are approximately normally distributed, with a mean of 75 and a standard deviation of 14. The scores on the calculus final are also approximately normally distributed, with a mean of 76 and a standard deviation of 15. A student scored 79 on the chemistry final and 83 on the calculus final. Relative to the students in each respective class, in which subject did the student do better?

$\mu_C = 75 \quad \sigma_C = 14$

$\mu_M = 76 \quad \sigma_M = 15$

Chemistry: 79

Calculus: 83

Standardize:

Chem: $\frac{79 - 75}{14} = 0.286$

Calc: $\frac{83 - 76}{15} = 0.467$

a) Calculus

b) Chemistry

c) The student did equally well in each course

d) There is no basis for comparison

e) None of the above

Question 13

Your answer is CORRECT.

Find a value of c so that $P(Z \leq c) = 0.76$.

a) 0.71

b) 1.71

c) -0.71

d) 0.29

e) 1.21

f) None of the above

invNorm(0.76)

qnorm(0.76)

= 0.71