MATH 1342

Homework 4 (Sections 3.3 – 4.2)

Instructions: Answer all questions through the EMCF tab of casa under the assignment named "Homework 4" before the deadline.

There is no "Submit" button. Your answers will be automatically submitted once the deadline arrives.

Assignments will be graded out of 20 points.

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1. Section 3.3; Problem 4

   A. Binomial B. Geometric C. Cannot Determine

2. Section 3.3; Problem 12 (a)

   A. ≈ 1 B. 0.9533 C. 0.0260 D. 0.0054 E. ≈ 0

3. Section 3.3; Problem 12 (b)

   A. 0.0405 B. 0.9427 C. ≈ 0 D. 0.40 E. ≈ 1

4. Section 3.3; Problem 12 (c)

   A. 0.2592 B. 0.3370 C. 0.9533 D. 0.0311 E. 0.40

5. Section 4.1; Problem 2 (b)

6. Section 4.1; Problem 2 (c)

7. Section 4.1; Problem 2 (d)

8. Section 4.1; Problem 2 (e)

   Choices for Questions 5, 6, 7, and 8:

   A. 0.0 B. 0.3 C. 0.5 D. 0.8 E. 1.0

9. Section 4.1; Problem 4 (b)

10. Section 4.1; Problem 4 (c)

11. Section 4.1; Problem 4 (d)

Choices for Questions 9, 10, and 11:

A. 0.0 B. 0.125 C. 0.25 D. 0.5 E. 0.625

12. Section 4.1, Problem 8

A. Median: A; Mean: B

B. Median: B; Mean: C

C. Median: A; Mean: C

D. Median: C; Mean: B

E. Median: C; Mean: A

Use the following description to answer questions 13, 14, 15, and 16:

A density curve consists of the line segment connecting the points (0,1) and (0.5,1) and the segment connecting (0.5, 1) to the x-axis.

13. Determine the coordinate point where the second segment crosses the x-axis.

A. (0.5, 0) B. (1.0, 0) C. (1.5, 0)

D. (2.0, 0) E. (2.5, 0)

14. Determine the slope of that segment.

A. m = -2 B. m = -1.5 C. m = -1

D. m = -0.5 E. m = -0.25

15. Determine the equation of the line containing this segment.

A. $y = -1.5x + 2$

B. $y = -x + 1.5$

C. $y = -x + 2$

D. $y = -2x + 1.5$

E. $y = -1.5x + 2.5$

16. Calculate the probability of $P(X > 1)$.

A. 0.0625 B. 0.125 C. 0.25 D. 0.325 E. 0.5

17. Section 4.2; Problem 6

A. (a) 95% (b) [41, 73]

B. (a) 95% (b) [49, 65]

C. (a) 68% (b) [49, 65]

D. (a) 68% (b) [41, 73]

E. (a) 99.7% (b) [33, 81]

18. Section 4.2; Problem 8

A. (a) 0.2672 (b) 0.6973

B. (a) 0.2672 (b) 0.0128

C. (a) 0.7328 (b) 0.6973

D. (a) 0.7328 (b) 0.0128

E. (a) 0.5 (b) 0.2551

19. In a certain population, there is a known $\mu = 56$ and $\sigma = 12$. Which of the following descriptions indicates that this measure could, possibly be, normally distributed?

A. Approximately 95% of the population falls within in the interval [44, 68].

B. The median of the population is determined to be at the value of 44.

C. The same percentage of the population falls within intervals of equal width (for example, the intervals [56, 60] and [80, 84] would contain equal percentages of the population since they are both width 4).

D. There is a greater percentage of the population represented for larger values rather than smaller.

E. When graphed, the density curve is a symmetric, single-peaked shape.

20. Weights of American adults are normally distributed with a mean of 180 pounds and a standard deviation of 8 pounds. What is the probability that a randomly selected individual will be between 185 and 190 pounds?

Proposed Solution:

pnorm(190-185,180,8) = 2.24756e-106, which is essentially 0.

What was done wrong in the proposed solution?

A. In using the pnorm command in R-Studio, you cannot include subtraction (or other operations) within your arguments.

B. The calculated value of 2.24756e-106 is not essentially 0.

C. Two pnorm commands must be calculated separately and their results subtracted rather than subtracting the values first.

D. The order of arguments in the pnorm command are not correct, but should be pnorm(mean, standard deviation, x-value).

E. There is nothing wrong with the proposed calculation.