

NAME: \_\_\_\_\_

1. 010226b, P.I. A2.S.5

A set of normally distributed student test scores has a mean of 80 and a standard deviation of 4. Determine the probability that a randomly selected score will be between 74 and 82.

2. 080222b, P.I. A2.S.5

The amount of time that a teenager plays video games in any given week is normally distributed. If a teenager plays video games an average of 15 hours per week, with a standard deviation of 3 hours, what is the probability of a teenager playing video games between 15 and 18 hours a week?

3. 010327b, P.I. A2.S.5

A shoe manufacturer collected data regarding men's shoe sizes and found that the distribution of sizes exactly fits the normal curve. If the mean shoe size is 11 and the standard deviation is 1.5, find:

*a* the probability that a man's shoe size is greater than or equal to 11

*b* the probability that a man's shoe size is greater than or equal to 12.5

*c*  $\frac{P(\text{size} \geq 12.5)}{P(\text{size} \geq 8)}$

[2] 0.624 or 62.4%, and appropriate work is shown.

[1] The correct standard deviations of -1.5 and +0.5 are found, but an incorrect probability is calculated.

or [1] Appropriate work is shown, but one computational error is made.

or [1] 0.624 or 62.4%, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[1] incorrect procedure.

[2] 0.341 or 34.1% or an equivalent answer, and appropriate work is shown.

[1] 0.682 or 0.841 or some other probability related to one standard deviation from the mean is shown.

or [1] 0.341 or 34.1% or an equivalent answer, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[2] incorrect procedure.

[4]  $\frac{1}{2}$  or 50%,  $\frac{15.9}{100}$  or 0.159, and  $\frac{0.159}{0.977}$  or

an equivalent answer, and appropriate work is shown.

[3] Correct answers are found for either part a or part b and for part c.

[2] Correct answers are found for part a and part b, but the answer for part c is missing or is incorrect.

or [2] Only the correct answer for part b is found, and one computational or substitution error is made in determining the answer to part c.

[1] Only the correct answer for either part a or part b is found.

or [1]  $\frac{1}{2}$  or 50%,  $\frac{15.9}{100}$  or 0.159, and  $\frac{0.159}{0.977}$

or an equivalent answer, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[3] incorrect procedure.