

NAME: _____

P.I. A2.S.5: Know and apply the characteristics of the normal distribution

1. A set of data that is normally distributed has a mean of 35.6 and standard deviation of 2.5. Which of the following is between 1 and 2 standard deviations of the mean?

[A] 41.2 [B] 29 [C] 34.1 [D] 38.3

2. The lengths of a certain species of fish was found to be normally distributed. The mean length is 84 cm with a standard deviation of 15 cm. In a school of 450 of these fish, how many would be longer than 99 cm?

[A] 61 [B] 153 [C] 72 [D] 439

3. The lengths of a certain species of fish was found to be normally distributed. The mean length is 78 cm with a standard deviation of 14 cm. In a school of 370 of these fish, how many would be longer than 92 cm?

[A] 126 [B] 50 [C] 59 [D] 361

4. The lengths of a certain species of fish was found to be normally distributed. The mean length is 79 cm with a standard deviation of 11 cm. In a school of 490 of these fish, how many would be longer than 101 cm?

[A] 12 [B] 66 [C] 167 [D] 478

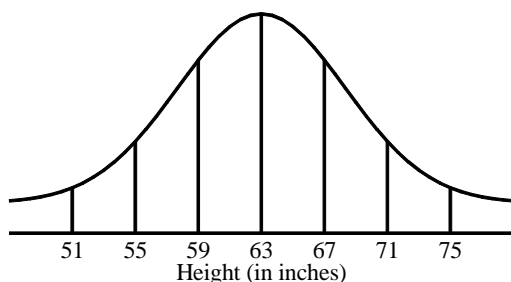
5. The heights of a certain group of adult parrots was found to be normally distributed. The mean height is 35 cm with a standard deviation of 7 cm. In a group of 1200 of these birds, how many would be more than 28 cm tall?

6. The heights of a certain group of adult parrots was found to be normally distributed. The mean height is 35 cm with a standard deviation of 8 cm. In a group of 1000 of these birds, how many would be more than 19 cm tall?

7. The heights of a certain group of adult parrots was found to be normally distributed. The mean height is 34 cm with a standard deviation of 8 cm. In a group of 400 of these birds, how many would be more than 18 cm tall?

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8. The heights of 1000 students at a local school were recorded and found to be approximated by the normal curve below. Which answer could represent the mean and standard deviation for these data?



- [A] 63, 8 [B] 67, 5 [C] 51, 4 [D] 63, 4

9. Compare the quantity in Column A with the quantity in Column B.

Column A

Mean is 15, standard deviation is 4.3; 3 standard deviations above the mean.

Column B

Mean is 35, standard deviation is 2.9; 2 standard deviations below the mean.

- [A] The quantity in Column A is greater. [B] The quantity in Column B is greater.
[C] The two quantities are equal.
[D] The relationship cannot be determined on the basis of the information supplied.

10. Use the area feature and the equation for the standard normal curve,

$$y = \frac{1}{\sigma \sqrt{2\pi}} e^{-\frac{(x - \mu)^2}{2\sigma^2}}$$

Find the area under the curve for 1.2 standard deviations from the mean.

- [1] D
- [2] C
- [3] C
- [4] A
- [5] 1008
- [6] 975
- [7] 390
- [8] D
- [9] B
- [10] 0.76986 or about 0.77