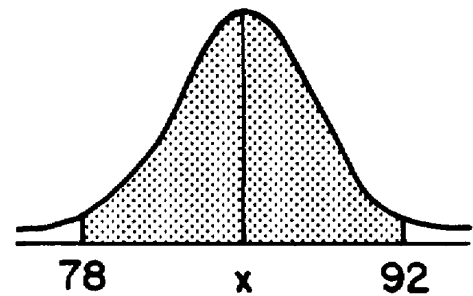
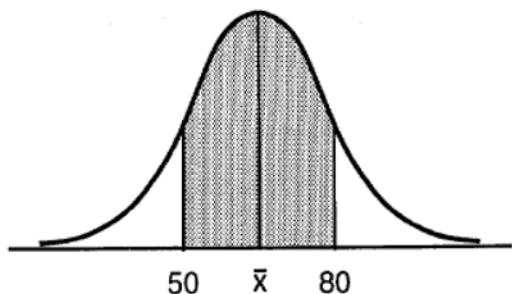


**A2.S.5: Normal Distributions 1: Know and apply the characteristics of the normal distribution**

- 1 On a standardized test, Cathy had a score of 74, which was exactly 1 standard deviation below the mean. If the standard deviation for the test is 6, what is the mean score for the test?
  - 1) 68
  - 2) 71
  - 3) 77
  - 4) 80
- 2 On a standardized test, a score of 82 falls exactly 1 standard deviation below the mean. If the standard deviation for the test is 4, what is the mean score for the test?
  - 1) 78
  - 2) 80
  - 3) 84
  - 4) 86
- 3 On a standardized test, Phyllis scored 84, exactly one standard deviation above the mean. If the standard deviation for the test is 6, what is the mean score for the test?
  - 1) 72
  - 2) 78
  - 3) 84
  - 4) 90
- 4 On a standardized test, a score of 86 falls exactly 1.5 standard deviations below the mean. If the standard deviation for the test is 2, what is the mean score for this test?
  - 1) 84
  - 2) 84.5
  - 3) 87.5
  - 4) 89
- 5 On a standardized examination, Laura received a score of 85, which was exactly 2 standard deviations above the mean. If the standard deviation for the examination is 4, what is the mean for this examination?
  - 1) 93
  - 2) 87
  - 3) 83
  - 4) 77
- 6 In the accompanying diagram, the shaded area represents approximately 95% of the scores on a standardized test. If these scores ranged from 78 to 92, which could be the standard deviation?
  - 1) 3.5
  - 2) 7.0
  - 3) 14.0
  - 4) 20.0



- 7 In the accompanying diagram, about 68% of the scores fall within the shaded area, which is symmetric about the mean,  $\bar{x}$ . The distribution is normal and the scores in the shaded area range from 50 to 80.



What is the standard deviation of the scores in this distribution?

- 1)  $7\frac{1}{2}$
  - 2) 15
  - 3) 30
  - 4) 65
- 8 The heights of the members of a high school class are normally distributed. If the mean height is 65 inches and a height of 72 inches represents the 84th percentile, what is the standard deviation for this distribution?
- 1) 7
  - 2) 11
  - 3) 12
  - 4) 137
- 9 The heights of a group of girls are normally distributed with a mean of 66 inches. If 95% of the heights of these girls are between 63 and 69 inches, what is the standard deviation for this group?
- 1) 1
  - 2) 1.5
  - 3) 3
  - 4) 6
- 10 In a normal distribution,  $\bar{x} + 2\sigma = 80$  and  $\bar{x} - 2\sigma = 40$  when  $\bar{x}$  represents the mean and  $\sigma$  represents the standard deviation. The standard deviation is
- 1) 10
  - 2) 20
  - 3) 30
  - 4) 60
- 11 In a normal distribution, 68% of the scores fall between 72 and 86 and the mean is 79. What is the standard deviation?
- 12 In a certain school district, the ages of all new teachers hired during the last 5 years are normally distributed. Within this curve, 95.4% of the ages, centered about the mean, are between 24.6 and 37.4 years. Find the mean age and the standard deviation of the data.
- 13 On a test that has a normal distribution of scores, a score of 57 falls one standard deviation below the mean, and a score of 81 is two standard deviations above the mean. Determine the mean score of this test.

## A2.S.5: Normal Distributions 1: Know and apply the characteristics of the normal distribution

### Answer Section

- 1 ANS: 4 REF: 068624siii  
 2 ANS: 4 REF: 089317siii  
 3 ANS: 2 REF: 069517siii  
 4 ANS: 4 REF: 010604b  
 5 ANS: 4 REF: 089925siii  
 6 ANS: 1 REF: 069030siii  
 7 ANS: 2 REF: 069726siii  
 8 ANS: 1 REF: 080020siii  
 9 ANS: 2 REF: 010331siii  
 10 ANS: 1 REF: 018930siii  
 11 ANS:  
 7

REF: 019712siii

- 12 ANS:  
 31, 3.2

REF: 060324b

- 13 ANS:

$$sd = \frac{81 - 57}{3} = 8$$

$$57 + 8 = 65$$

$$81 - 2(8) = 65$$

REF: 011534a2