

Name _____

Date _____

Math 4

Wkfst-8.02 Z-Score & Standard Normal Table

A normal distribution has mean \bar{x} and standard deviation σ . Find the indicated probability for a randomly selected x -value from the distribution.

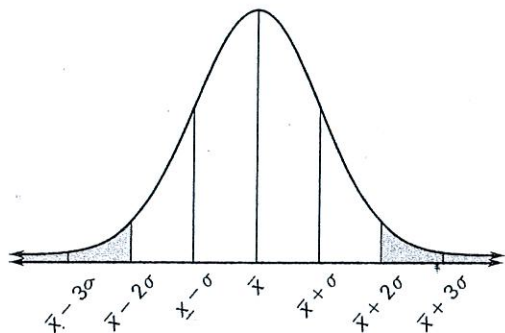
1. $P(x \geq \bar{x} - \sigma)$

2. $P(x \leq \bar{x} + 3\sigma)$

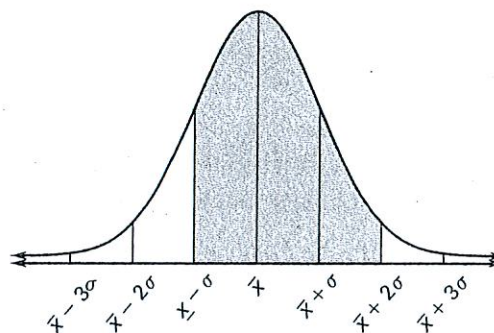
3. $P(x \leq \bar{x} - 3\sigma)$

Give the percent of the area under the normal curve represented by the shaded region.

4.



5.



A normal distribution has a mean of 25 and a standard deviation of 5. Find the probability that a randomly selected x -value from the distribution is in the given interval.

6. Between 25 and 30

7. Between 15 and 25

8. Between 20 and 35

9. At least 20

10. At least 40

11. At most 15

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A normal distribution has a mean of 75 and a standard deviation of 10. Use the standard normal table of your textbook to find the indicated probability for a randomly selected x -value from the distribution.

12. $P(x \leq 75)$

13. $P(x \leq 85)$

14. $P(x \leq 55)$

15. $P(x \leq 87)$

16. $P(x \leq 69)$

17. $P(x \leq 45)$

In Exercises 18 and 19, use the following information.

Breakfast A restaurant is busiest on Sunday from 6:00 A.M. to 9:00 A.M. During these hours, the waiting time for customers in groups of 5 or less to be seated is normally distributed with a mean of 20 minutes and a standard deviation of 4 minutes.

18. What is the probability that customers in groups of 5 or less will wait 8 minutes or less to be seated during the busy Sunday morning hours?

19. What is the probability that customers in groups of 5 or less will wait 24 minutes or more to be seated during the busy Sunday morning hours?

In Exercises 20 and 21, use the following information.

Light Bulbs A company produces light bulbs having a life expectancy that is normally distributed with a mean of 1800 hours and a standard deviation of 65 hours.

20. Find the z -score for a life expectancy of 2000 hours.

21. What is the probability that a randomly selected light bulb will last at most 2000 hours?