

LESSON
6.3**Practice A**

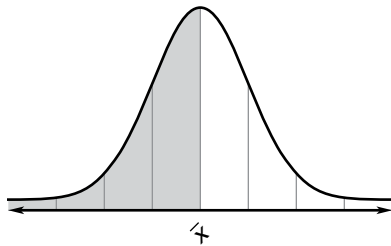
For use with the lesson "Use Normal Distributions"

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

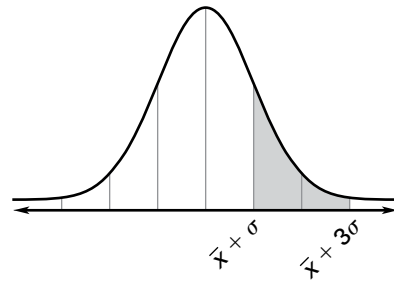
1. $P(x \geq \bar{x})$ 2. $P(x \leq \bar{x} - 2\sigma)$ 3. $P(x \leq \bar{x} + 3\sigma)$

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

4.



5.



A normal distribution has a mean of 18 and a standard deviation of 3. Find the probability that a randomly selected x -value from the distribution is in the given interval.

6. Between 18 and 21 7. Between 12 and 18 8. Between 15 and 24
9. At least 21 10. At least 27 11. At most 12

A normal distribution has a mean of 50 and a standard deviation of 5. Use the standard normal table on page 759 of your textbook to find the indicated probability for a randomly selected x -value from the distribution.

12. $P(x \leq 50)$ 13. $P(x \leq 55)$ 14. $P(x \leq 40)$
15. $P(x \leq 62)$ 16. $P(x \leq 47)$ 17. $P(x \leq 34)$

In Exercises 18 and 19, use the following information.

Restaurant Seating A restaurant is busiest Saturday from 5:00 P.M. to 8:00 P.M. During these hours, the waiting time for customers in groups of 4 or less to be seated is normally distributed with a mean of 15 minutes and a standard deviation of 2 minutes.

18. What is the probability that customers in groups of 4 or less will wait 9 minutes or less to be seated during the busy Saturday night hours?
19. What is the probability that customers in groups of 4 or less will wait 17 minutes or more to be seated during the busy Saturday night 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 2000 hours and a standard deviation of 50 hours.

20. Find the z -score for a life expectancy of 2085 hours.
21. What is the probability that a randomly selected light bulb will last at most 2085 hours?