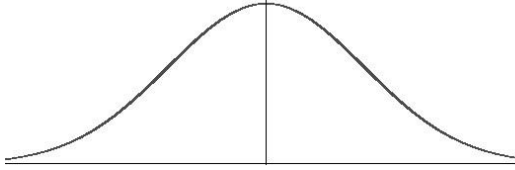
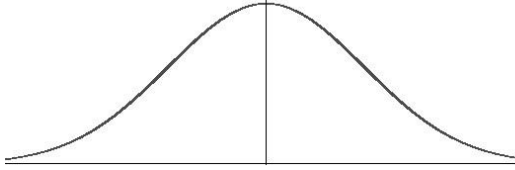
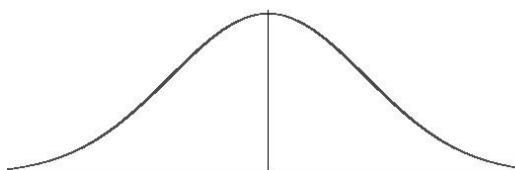
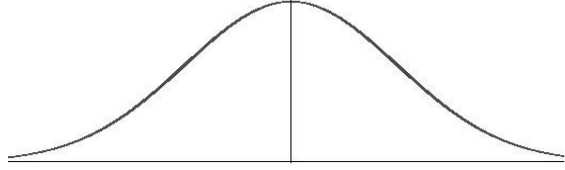
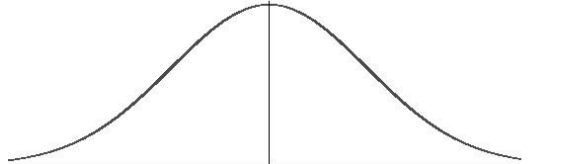
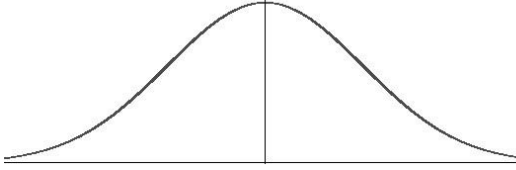
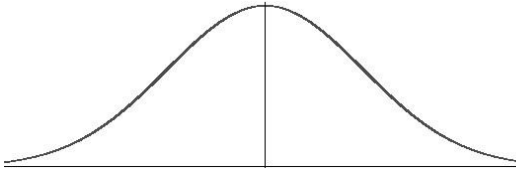
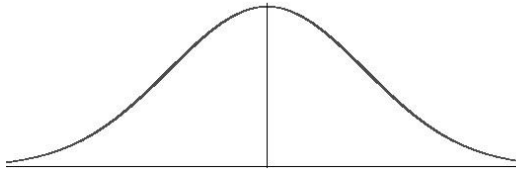
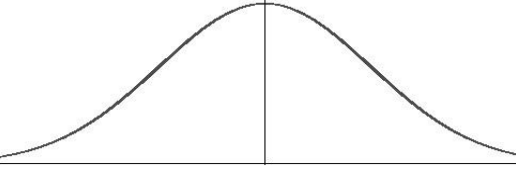
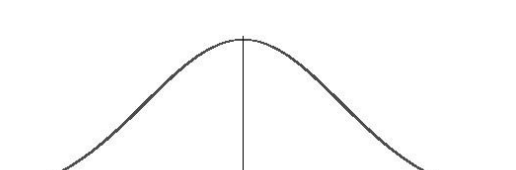


Areas and Z-scores

AREAS

For each of the following problems, shade the area represented by the problem stated in the first column. Be sure to label your horizontal axis. In the last column, identify the interval represented by each area.

<p>1. The area under the standard normal curve where the z-score is between $z = -1.25$ and $z = 2.08$.</p>		<p>Lower bound:</p> <p>Upper bound:</p> <p>Interval Notation:</p>
<p>2. The area under the standard normal curve where the z-score is at least $z = 0.75$.</p>		<p>Lower bound:</p> <p>Upper bound:</p> <p>Interval Notation:</p>
<p>3. The area under the standard normal curve where the z-score is at most $z = 1.15$.</p>		<p>Lower bound:</p> <p>Upper bound:</p> <p>Interval Notation:</p>
<p>4. The area under the standard normal curve where the z-score is more than $z = -0.65$.</p>		<p>Lower bound:</p> <p>Upper bound:</p> <p>Interval Notation:</p>
<p>5. The area under the standard normal curve where the z-score is less than $z = -0.5$.</p>		<p>Lower bound:</p> <p>Upper bound:</p> <p>Interval Notation:</p>

<p>6. The area under the standard normal curve to the right of $z = 1.95$.</p>		<p>Lower bound:</p> <p>Upper bound:</p> <p>Interval Notation:</p>
<p>7. The area under the standard normal curve to the left of $z = -1.13$.</p>		<p>Lower bound:</p> <p>Upper bound:</p> <p>Interval Notation:</p>
<p>8. The area under the curve where the z-score is more than $z=1.25$ or is less than $z = -1.75$.</p>		<p>Interval Notation:</p>
<p>9. The area under the standard normal curve where the z-score is within one standard deviation of the mean.</p>		<p>Lower bound:</p> <p>Upper bound:</p> <p>Interval Notation:</p>
<p>10. The area under the standard normal curve where the z-score is more than two standard deviations from the mean.</p>		<p>Interval Notation:</p>

SOLVING EQUATIONS FOR ONE VARIABLE

Using the equation $z = \frac{x - \mu}{\sigma}$, complete the following problems.

11. An intelligence test has a normal distribution with mean 100 and standard deviation of 15. Find the z-score corresponding to each of the following intelligence test scores.

a) Roger scored 85.

b) Sally scored 120.

c) Steve scored 135.

12. Women's heights are normally distributed with a mean of 63.7 inches and a standard deviation of 2.5 inches. Find the z-score corresponding to each of the following women's heights. Determine if any of the given heights are unusual.

a) Height = 60 inches

b) Height = 72 inches

c) Height = 68 inches

13. A standardized test is normally distributed with a mean of 75 and a standard deviation of 12. Find the raw score that corresponds with the following z-scores. Round answers to the nearest tenth, if necessary.

a) $z = -1.25$	b) $z = 1.34$
c) $z = 2.05$	d) $z = -2.25$

14. A standardized test is normally distributed with a mean of 85. If Brenda's score of 103 resulted in a z-score of 1.65, what is the standard deviation for this distribution? Round answer to the nearest tenth.
15. The heights of men in the U.S. are normally distributed with a mean of 69.1 inches. If Jeff's height of 70 inches has a z-score of 0.31, what is the standard deviation for this distribution? Round answer to the nearest tenth.
16. Assume that the resting pulse rates for a group of individuals are normally distributed with a standard deviation of 15 beats per minute (bpm). If Karen's resting pulse rate of 57 bpm resulted in a z-score of -0.87, what is the mean of resting pulse rates for this group? Round answer to the nearest whole number.
17. The ages of the employees at the public library are normally distributed with a standard deviation of 4.75 years. If Barbara's age of 55 years old resulted in a z-score of 2.74, what is the mean age at the public library? Round answer to the nearest whole number.
18. The monthly income of the employees at the local manufacturing plant are distributed normally distributed with a mean monthly income is \$2,750 and a standard deviation of \$250. If John's monthly income has a z-score of 1.64, what is John's monthly income?

INEQUALITY VOCABULARY REFRESHER

An exam consists of 15 multiple choice questions. Each of the answers is either right or wrong. Suppose we consider the number of correct answers as the outcome of interest. LIST ALL the possible outcomes for each of the following situations.

19. The student answers more than 10 questions correctly.	
20. The student answers less than 9 questions correctly.	
21. The student answers at most 7 questions correctly.	
22. The student answers greater than 7 questions correctly.	
23. The student answers between 7 and 14 questions correctly.	
24. The student answers at least 5 questions correctly.	
25. The student answers no more than 10 questions correctly.	
26. The student answers between 5 and 12 (inclusive) questions correctly.	
27. The student answers fewer than 6 questions correctly.	
28. The student answers no less than 11 questions correctly.	

