Homework: Section 6.2

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- You can attempt each problem twice, then the answer will be shown on your third attempt.
- You can attempt each problem as many times needed as long as it is before the due date.
- When reattempting a problem, you will receive a similar problem, not the exact previous problem.
- You can keep on working on versions of a question until you get a perfect score on the exercises.
- The staff at the Math Success Center may help you on this assignment.

Question 1

0/1 pt 2 98

A manufacturer knows that their items have a normally distributed lifespan, with a mean of 3.1 years, and standard deviation of 0.8 years.

If you randomly purchase one item, what is the probability it will last longer than 1 years?

Round answer to three decimal places

_____

Question Help: Video

Question 2

0/1 pt 2 98

Company XYZ know that replacement times for the DVD players it produces are normally distributed with a mean of 5.5 years and a standard deviation of 1.8 years.

Find the probability that a randomly selected DVD player will have a replacement time less than -0.3 years?

$P(X < -0.3 \text{ years})$ = _____

Enter your answer accurate to 4 decimal places. Answers obtained using exact z-scores or z-scores rounded to 3 decimal places are accepted.

If the company wants to provide a warranty so that only 2.8% of the DVD players will be replaced before the warranty expires, what is the time length of the warranty?

warranty = _____ years

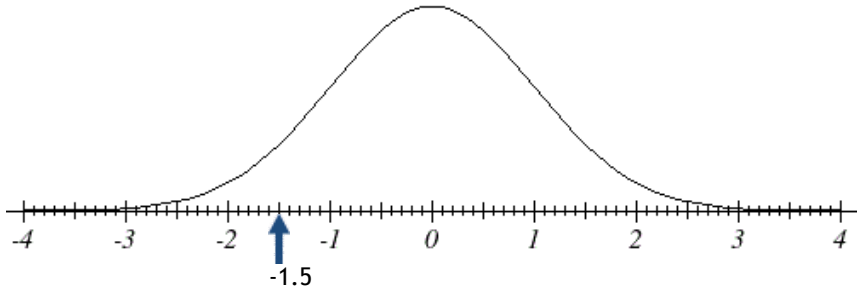
Enter your answer as a number accurate to 1 decimal place. Answers obtained using exact z-scores or z-scores rounded to 3 decimal places are accepted.

Question 3

0/1 pt 2 98

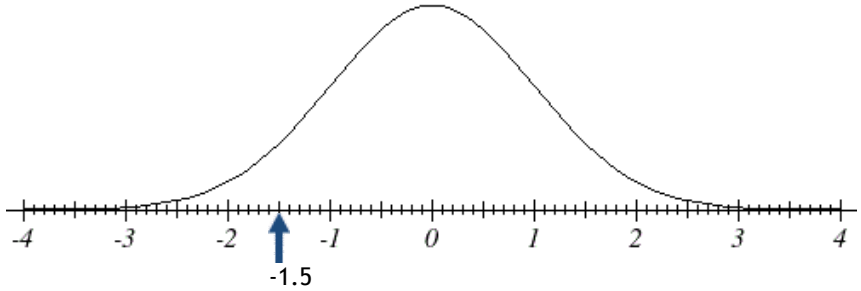
Sketch the region corresponding to the statement $P(z < 1.4)$

Shade: Left of a value. Click and drag the arrows to adjust the values.



Sketch the region corresponding to the statement $P(z < c) = 0.4$.

Shade: Left of a value. Click and drag the arrows to adjust the values.



Question 4 0/1 pt 2 98

A normal distribution has a mean of 147 and a standard deviation of 9. Find the z-score for a data value of 156.

_____ *Round to two decimal places*

Question Help: Video

Question 5 0/1 pt 2 98

A manufacturer knows that their items have a normally distributed length, with a mean of 9.5 inches, and standard deviation of 1.4 inches.

If one item is chosen at random, what is the probability that it is less than 6.4 inches long?

Question Help: Video

Question 6 0/1 pt 2 98

Adult men have an average height of 69.0 inches with a standard deviation of 2.8 inches. Find the height of a man with a z-score of -0.75. *Round your answer to one decimal place.*

inches

Question 7 0/1 pt 2 98

A study was conducted on students from a particular high school over the last 8 years. The following information was found regarding standardized tests used for college admitance. Scores on the SAT test are normally distributed with a mean of 1059 and a standard deviation of 205. Scores on the ACT test are normally distributed with a mean of 21.2 and a standard deviation of 4. It is assumed that the two tests measure the same aptitude, but use different scales.

If a student gets an SAT score that is the 65-percentile, find the actual SAT score.

SAT score =

Round answer to a whole number.

What would be the equivalent ACT score for this student?

ACT score =

Round answer to 1 decimal place.

If a student gets an SAT score of 1285, find the equivalent ACT score.

ACT score =

Round answer to 1 decimal place.

Question 8 0/1 pt 2 98

z = 3 is what percentile?

percentile

State your answer to the nearest tenth of a percent.

Question 9 0/1 pt 2 98

In the country of United States of Heightlandia, the height measurements of ten-year-old children are approximately normally distributed with a mean of 53.5 inches, and standard deviation of 8.1 inches.

What is the probability that the height of a randomly chosen child is **between** 55.35 and 60.05 inches? Do not round until you get your your final answer, and then round to 3 decimal places.

Answer= _____ (Round your answer to 3 decimal places.)

Question Help: Video

Question 10 0/1 pt 2 98

A distribution of values is normal with a mean of 156.4 and a standard deviation of 96.5.

Find P_{74}, which is the score separating the bottom 74% from the top 26%.

P_{74} = _____

Enter your answer as a number accurate to 1 decimal place. Answers obtained using exact z-scores or z-scores rounded to 3 decimal places are accepted.

Question 11 0/1 pt 2 98

A manufacturer knows that their items have a normally distributed lifespan, with a mean of 3.2 years, and standard deviation of 1 years.

The 3% of items with the shortest lifespan will last less than how many years?

Give your answer to one decimal place.

_____

Question Help: Video

Question 12 0/1 pt 2 98

A manufacturer knows that their items have a normally distributed lifespan, with a mean of 10.2 years, and standard deviation of 2.5 years.

If you randomly purchase one item, what is the probability it will last longer than 9 years?

_____

Question Help: Video

Question 13 0/1 pt 2 98

The amounts of nicotine in a certain brand of cigarette are normally distributed with a mean of 0.929 grams and a standard deviation of 0.316 grams. Find the probability of randomly selecting a cigarette with 0.329 grams of nicotine **or less**. *Round your answer to four decimals.*

$P(X < 0.329) =$ _____

Question Help: Video

Question 14 0/1 pt 2 98

In the country of United States of Heightlandia, the height measurements of ten-year-old children are approximately normally distributed with a mean of 54.9 inches, and standard deviation of 5.2 inches.

A) What is the probability that a randomly chosen child has a height of **less** than 43.7 inches?

Answer= _____ (Round your answer to 3 decimal places.)

B) What is the probability that a randomly chosen child has a height of **more** than 62.1 inches?

Answer= _____ (Round your answer to 3 decimal places.)

Question Help: Video

Question 15 0/1 pt 2 98

GPAs at CCSU are normally distributed with a mean of 2.18 and a standard deviation of 0.55. Find the z-score for a GPA of 3.15.

- 0.4545
- 0.8000
- 0.7636
- 1.764
- 1.036
- 1.291

Question 16 0/1 pt 2 98

Assume that the readings at freezing on a batch of thermometers are normally distributed with a mean of 0°C and a standard deviation of 1.00°C. A single thermometer is randomly selected and tested. Find P_2, the 2-percentile. This is the temperature reading separating the bottom 2% from the top 98%.

P_2 = _____ °C

(Round answer to three decimal places)

Question Help: Video

Question 17 0/1 pt 2 98

The heights of adult men in America are normally distributed, with a mean of 69.7 inches and a standard deviation of 2.67 inches. The heights of adult women in America are also normally distributed, but with a mean of 64.4 inches and a standard deviation of 2.56 inches.

a) If a man is 6 feet 3 inches tall, what is his z-score (to two decimal places)?

z = _____

b) If a woman is 5 feet 11 inches tall, what is her z-score (to two decimal places)?

z = _____

c) Who is relatively taller?

- The 5 foot 11 inch American woman
- The 6 foot 3 inch American man