Problem 1

**Given:**

The following z score ranges:

* Between z = 0 and z = 2.0
* To the right of z = 1.26
* To the left of z = - 0.8
* Between z = -1.47 and z = 2.39

**Find:**

The area under the normal distribution curve for the given z score ranges

**Diagram:**

A picture containing text, map, flock

Description automatically generated

**Theory:**

Use z score

Z = (value – mean) / stdev

**Assumptions:**

Working with normal distribution

**Solution:**

Used ti-84 calculator

Text, letter

Description automatically generated

Problem 2

**Given:**

Mean = 85

Standard deviation = 8.0

**Find:**

Probability of choosing a score of 95 or higher on the distribution

**Diagram:**

Chart, line chart

Description automatically generated

**Theory:**

Z score = (observed value – mean) / standard deviation

Probability = area under normal curve from z = (95-85)/8 to infinity

**Assumptions:**

scores are approximately normally distributed

**Solution:**

Used ti-84 calculator

A picture containing text, shoji, close

Description automatically generated

Problem 3

**Given:**

Mean = 63.0 oz

Standard deviation = 1.25 oz

**Find:**

Probability of a z score higher than (64-63)/1.25

**Diagram:**

Chart, diagram

Description automatically generated with medium confidence

**Theory:**

Use z score

Z = (value – mean) / stdev

**Assumptions:**

The amount of soda dispensed approximately follows a normal distribution.

**Solution:**

Used ti-84 calculator

Calendar

Description automatically generated

Problem 4

**Given:**

Mean = 4600 hours

Standard deviation = 250 hours

**Find:**

X such that the area under a normal distribution from negative infinity to z=(x-4600)/250 is 0.03 or 3%.

**Diagram:**

**A picture containing diagram

Description automatically generated**

**Theory:**

Use z score

Z = (value – mean) / stdev

**Assumptions:**

Lightbulb lifetimes are approximately normally distributed

**Solution:**

Used ti-84 calculator

Text

Description automatically generated

Problem 5

**Given:**

Mean = 13 years

Standard deviation = 1.5 years

**Find:**

The advertised scooter lifespan such that only 5% will die before the advertised lifespan given the mean and standard deviation data

**Diagram:**

**Diagram

Description automatically generated with medium confidence**

**Theory:**

Use z score

Z = (value – mean) / stdev

**Assumptions:**

Lives of scooters are normally distributed

**Solution:**

Used ti-84 calculator

A picture containing application

Description automatically generated