Problem 1

**Given:**



**Find:**

Confidence level

**Diagram:**

Diagram

Description automatically generated with medium confidence

**Theory:**

Percent area under normal curve given the z score range

**Assumptions:**

Normal distribution

**Solution:**

Used ti 84 calculator

Normalcdf(-1.13, 1.13, 0, 1) = 0.7415 or 74.15% confident

Problem 2

**Given:**

n = 91, average = 216, 95% confidence interval: (210, 222)

**Find:**

* Population standard deviation
* confidence interval if n is doubled

**Diagram:**

Diagram

Description automatically generated with low confidence

**Theory:**

Diagram

Description automatically generated with medium confidence

**Assumptions:**

Stats follow normal curve

**Solution:**

used old school tables

Error = 6 = , z=1.96, n = 91 so s = 29.2 discord messages per day

New CI: 1.96 \* 29.2 / sqrt(91\*2) = 216 +/- 4.24 discord messages per day

Problem 3

**Given:**

Error = 2 days when n = 102 for a 90% confidence interval

**Find:**

The number of records that are needed to find a 90% confidence interval with an error of +/- 1 day

**Diagram:**

Chart

Description automatically generated with medium confidence

**Theory:**

Diagram

Description automatically generated with medium confidence

**Assumptions:**

Stats follow normal distribution

Visitors are under 35 years of age

**Solution:**

Used old school tables

Z = 1.65 since confidence level is 90%

Standard deviation = 2 \* sqrt(n) / z = 12.2

Error = 1 = z \* s / sqrt(n); n = (1.65\*12.22)^2 = **408 records**