

Name: KEY

Section 2 – Practice Test

1. What is the mean, median, and mode of the following set of data

3, 6, 8, 1, 9, 12, 8

Mean

$$\frac{3+6+8+1+9+12+8}{7}$$

6.7

Median

1, 3, 6, 8, 8, 9, 12

8

Mode

8

2. What is the Standard Deviation of the Data from Question 1.

$$\sigma = \sqrt{\frac{(x_1 - \mu)^2 + (x_2 - \mu)^2 + \dots + (x_n - \mu)^2}{n}}$$

$$\sqrt{\frac{(1-6.7)^2 + (3-6.7)^2 + (6-6.7)^2 + (8-6.7)^2 + (8-6.7)^2 + (9-6.7)^2 + (12-6.7)^2}{7}}$$

$$\sqrt{\frac{32.49 + 13.69 + 0.49 + 1.69 + 1.69 + 5.29 + 28.09}{7}}$$

$$\sqrt{\frac{83.43}{7}} = \sqrt{11.9} = 3.5$$

3. What is the probability of the corresponding Z Scores?

0.9989

3.07

0.6406

0.36

0.1736

-0.94

0.0038

-2.67

4. What are the Probabilities related to the following Z-Scores?

0.95

0.9289

-1.93

0.0268

-0.76

0.2236

1.67

0.9525

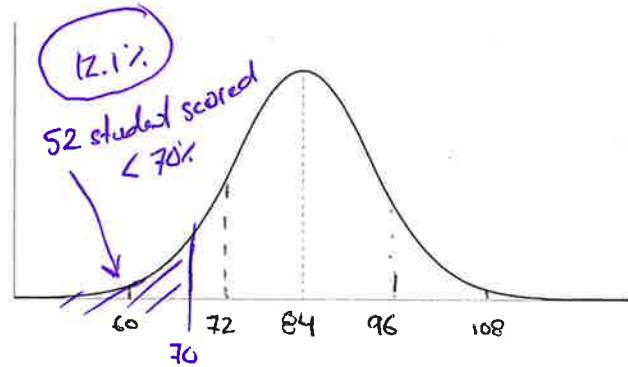
$$Z = \frac{x - \mu}{\sigma} \quad P\left(z < \frac{x - \mu}{\sigma}\right)$$

5. If there are 430 students who take the numeracy assessment and the average score on the test was 84%. With a standard deviation of 12%. How many students got below 70%? Draw the representation of this on the Normal Curve Provided.

$$Z = \frac{70 - 84}{12} = -1.17$$

$$Z_{-1.17} = 0.1210$$

12.1%



of students

$$430 \cdot 12.1\% = 52.03$$

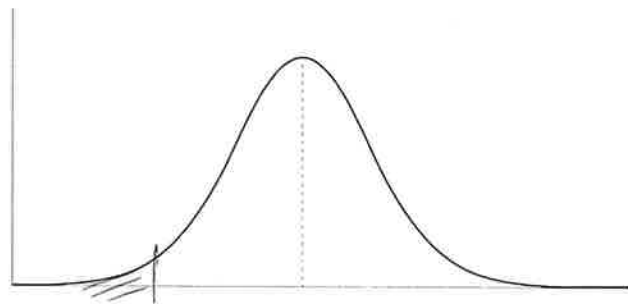
52 students

6. If the average score for a golf round at Cedar Hill is 80 strokes with a Standard Deviation of 9. What is the probability that someone takes only 65 strokes? Show your results on the Normal Curve.

$$Z = \frac{65 - 80}{9} = -1.67$$

$$Z_{-1.67} = 0.0475$$

4.75%



only 4.75% of golfers quite rare.

7. If the average dart score is 165 with a standard deviation of 17 and a sample size of 81. What is the true mean with a 90% confidence interval.

$$\bar{x} = 165$$

$$s = 17$$

$$n = 81$$

$$\alpha = 10\% = 0.10$$

$$\frac{\alpha}{2} = 0.05$$

$$\bar{x} - \frac{Z_{0.05}(17)}{\sqrt{81}} < \mu < \bar{x} + \frac{Z_{0.05}(17)}{\sqrt{81}}$$

$$165 - \frac{(1.65)(17)}{9} < \mu < 165 + \frac{(1.65)(17)}{9}$$

$$165 - 3.12 < \mu < 165 + 3.12$$

True mean is between 161.88 and 168.12 with 90% confidence,
or

True mean is $165 \pm$ about 3 9 times out of 10.

8. If a sample size of 100 people produced an average IQ score of 98 with a standard deviation of 8. What is the true mean given a 99% confidence interval?

$$\bar{x} = 98$$

$$s = 8$$

$$n = 100$$

$$\alpha = 1\% = 0.01$$

$$\frac{\alpha}{2} = 0.005$$

$$\bar{x} - \frac{Z_{0.005}(8)}{\sqrt{100}} < \mu < \bar{x} + \frac{Z_{0.005}(8)}{\sqrt{100}}$$

$$98 - \frac{(2.58)(8)}{10} < \mu < 98 + \frac{(2.58)(8)}{10}$$

$$98 - 2.064 < \mu < 98 + 2.064$$

$$95.936 < \mu < 100.064$$

True mean is between 95.94 and 100.06 with 99% confidence,
or

True mean is $98 \pm$ about 2 99 times out of 100.

