Math III Unit 7 Final Review **Name:**

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1. Mike was in charge of collecting contributions for the Food Bank. He received contributions of $20, $100, $30, $20, and $60.
   Find the following:
   mean
   median
   mode
   range

   .

2. Last year, the personal best high jumps of track athletes in a nearby state were normally distributed with a mean of $208\ cm$ and a standard deviation of $15\ cm$. What is the probability that a randomly selected high jumper has a personal best of:
   a) between 223 and 238 cm
   b) at least 223 cm
   c) between 193 cm and 253 cm

   .

3. The class average on a test was 85, with a standard deviation of 3.8. Find the probability that a student received at least a 76 on the test.

4. Suppose the test scores on an exam show a normal distribution with a mean of 82 and a standard deviation of 5.
   a. Within what range do about 95% of the scores fall?
   b. About what percent of the scores are between 77 and 92?

   .

5. When 1200 voters were polled, 53% said they were voting *yes* on an initiative measure. Find the margin of error and the interval that is likely to contain the true population percent.

   .

6. According to a recent survey, 45% of American teenagers in a random sample said they prefer thick crust pizza to thin crust. If the margin of error is $\pm 6\%$, about how many students were surveyed?

   .

Problems 7 - 8, determine which sampling method is used.

7. mail a response card

8. the first 40 students who enter the office

9. Identify the type of sample and describe the population of the survey. Then tell if the sample is potentially biased. Explain your reasoning: ASB wants to know if Juniors are interested in planning a Senior trip. The ASB Junior class president asks their friends to fill out a poll on their Twitter page.

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10. Draw a box-and-whisker plot of the data:
24, 16, 12, 28, 19, 21, 15

.

11. Sam's score on a test was 66. Jane's score on the same test was 88. The class average was 78, and the standard deviation was 3.4.
a. Find Sam's z-score.
b. Find Jane's z-score.

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12. ***ACT Test*** Twenty thousand students in your state took the ACT test. On the math portion the mean was 21 and the standard deviation was 5. If the scores resulted in a normal distribution, how many students scored at least 16? (Give the percent and the number.)

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13. The Halal Guys (a Middle Eastern restaurant) currently has 47 Yelp reviews. The average star rating is 4.0 and the sample standard deviation of the star ratings is 1.2. What is a 95% confidence interval for the actual average rating for Halal Guys.

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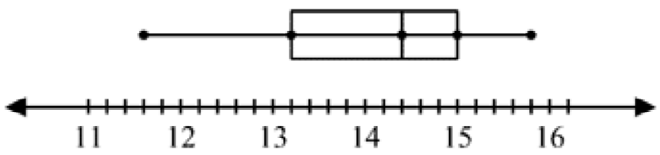
14. The box-and-whisker plot represents the weights, in kilograms, of the 68 children at a preschool daycare center. About how many children at the center have weights between 13.2 kg and 14.4 kg?



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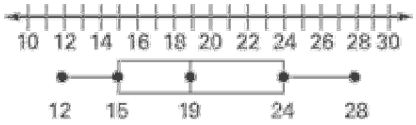
Answer Section

1. mean = $46
   median = $30
   mode = $20
   range = $80
2. a) 13.5%
   b) 16%
   c) 83.85%
3. 0.9918
4. a. $72 \le x \le 92$
   b. about 81.5%
5. ±2.9%; between 50.1% and 55.9%
6. about 278 students
7. self - selected
8. convenience
9. Sample answer: Convenience; the population is all Juniors at the school; the sample is biased, because it doesn't necessrily represent the views of all Juniors at the school.
10. Answer:



11. a. ≈ –3.53
    b. ≈ 2.94
12. 84%; 16,800
13. (3.65, 4.35)
14. There are about 17 children with weights in that range.