

- 1) Consider the data below which represents the ages of people at a party who wear socks with sandals.

{6, 7, 9, 12, 18, 19, 24, 29, 35, 37}

- a) (2 points) Find the mean of the data:

$$\frac{6+7+9+12+\dots+37}{10} = \underline{19.6}$$

- b) (2 points) Find the median of the data:

$$\frac{18+19}{2} = \underline{18.5}$$

- c) (2 points) Find the mode of the data:

None

- d) (2 points) Find the range of the data:

$$37 - 6 = \underline{31}$$

- e) (2 points) Find and label the quartiles Q_1 , Q_2 , and Q_3 .

$$Q_2 = 18.5$$

$$Q_1 = 9$$

$$Q_3 = 29$$

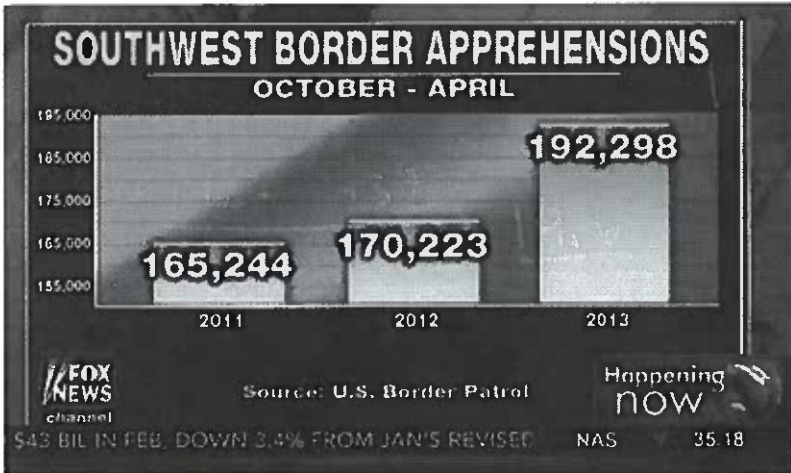
- 2) (3 points) Alice Student is taking 5 courses this semester:

Running Underwater—2 credit hours—Grade: A *Quiet Tap Dance*—3 credit hour—Grade: C
Who Really Let the Dogs Out—4 credit hours—Grade: B *Tag*—2 credit hours—Grade: A
Defense Against the Dark Arts—3 credit hours—Grade: A

Assuming that a grade of an 'A' is worth 4 point, grade of a 'B' is worth 3 points, and a grade of a 'C' is worth 2 points, determine Alice's grade point average for the semester rounded to two decimal places:

$$\frac{2 \cdot 4 + 3 \cdot 2 + 4 \cdot 3 + 2 \cdot 4 + 3 \cdot 4}{2 + 3 + 4 + 2 + 3} = \boxed{3.29}$$

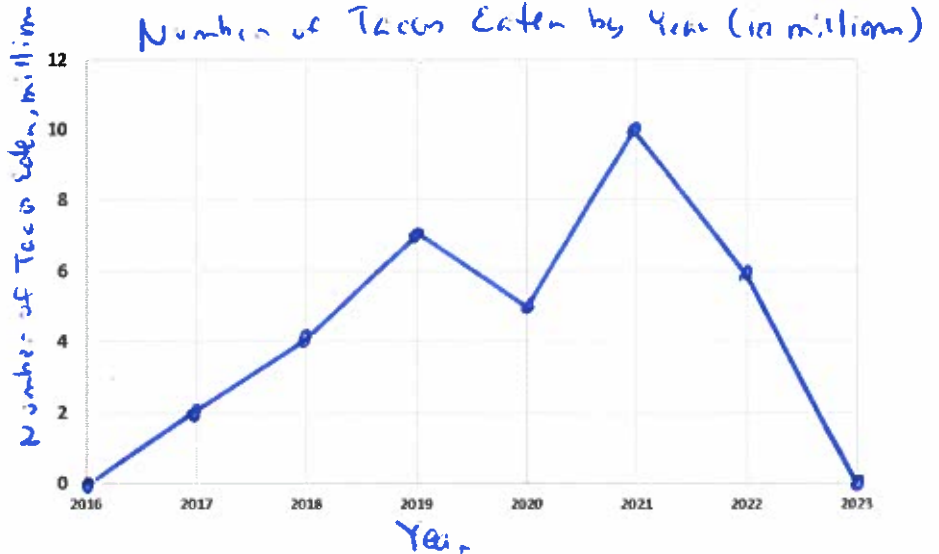
3) (4 points) For the graph below, find at least 3 errors in its presentation.



1. Y-axis does not start at zero / no marking of shift
2. Has different years but same Oct - April
3. No label of title axis

4) ⁵ (5 points) Mike really loves Taco Tuesday. Really, really loves it. The following chart shows number of tacos that Mike ate over the past several years. Draw and label a frequency polygon for the data.

Year	Number of Tacos Mike Ate (in millions)
2017	2
2018	4
2019	7
2020	5
2021	10
2022	6



5) (3 points each) Suppose there are 3,500 people at a concert and the ages of the people are normally distributed with a mean of 42 years and a standard deviation of 8 years.

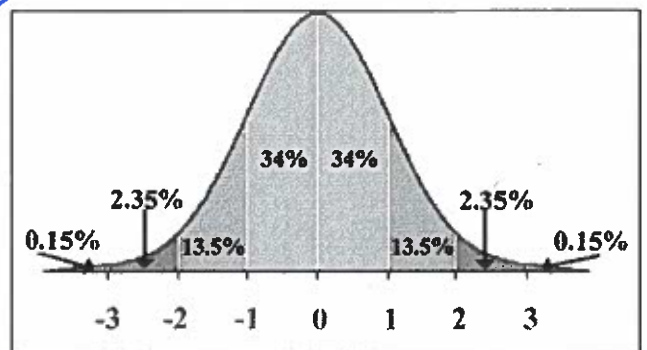
a) What percent of people are younger than 34 years?

$$0.15 + 2.35 + 13.5\% = 16\%$$

b) What number of people are older than 58 years?

$$2.35 + 0.15 = 2.5\%$$

$$2.5\% \text{ of } 3500 = 87.5 \text{ people}$$



34 42 50 58

15

6) (4 points each) The average number of books a child reads over the summer is 8.7 books with a standard deviation of 1.3 books. Suppose a child was randomly picked. What is the probability that they had read. Recall that $z = \frac{x-\mu}{\sigma}$.

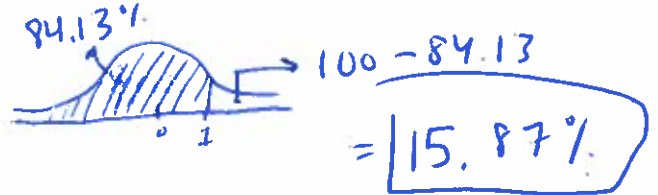
a) Less than 6 books?

$$z = \frac{6 - 8.7}{1.3} = -2.08$$

1.88%

b) At least 10 books?

$$z = \frac{10 - 8.7}{1.3} = 1.00$$



c) Less than 5 books or more than 11 books?

$$z = \frac{5 - 8.7}{1.3} = -2.85 \rightarrow 0.22\%$$

$$z = \frac{11 - 8.7}{1.3} = 1.77 \rightarrow \begin{matrix} \text{more than} \\ 100 - 96.16\% \end{matrix}$$

add the percent

4.06%

d) Between 7 and 10 books?

$$z = \frac{7 - 8.7}{1.3} = -1.31$$

$$\text{from part b} \rightarrow 9.51\%$$

$$84.13 - 9.51 = 74.62\%$$

7) (2 points each) Short answer:

a) Explain how to find the median of the set of numbers.

b) When should you use a histogram instead of a bar graph when graphically representing data?

c) When is it not correct to use the 68-95-99.7% Rule?