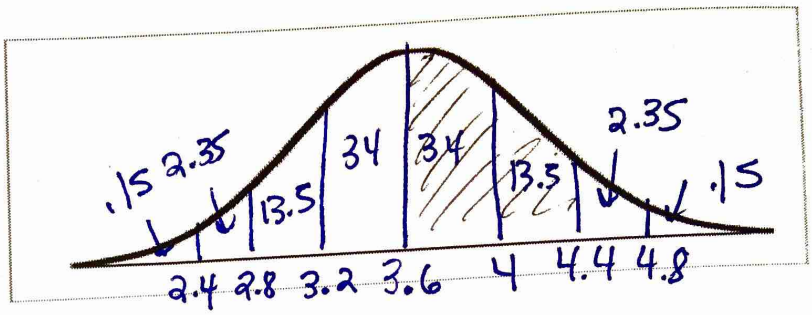
/ 5 –NORMAL DISTRIBUTION AND EMPIRICAL RULE NAME Key

The weights of adorable, fluffy kittens are normally distributed with a mean of 3.6 pounds and a standard deviation 0.4 pounds. **Answer the following questions, using e Empirical Rule.**



What percent of adorable, fluffy kittens weigh etween 2.8 and 4.8 pounds?

97.35%

. What percent of adorable, fluffy kittens weigh less than 2.4 pounds?

.15%

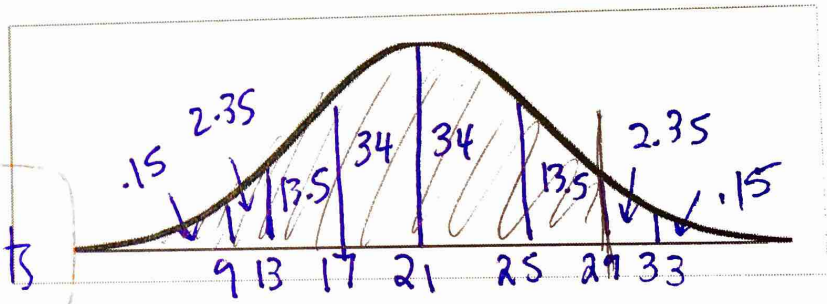
c. If there are 23 adorable, fluffy kittens at the animal shelter, how many of them weigh between 3.6 and 4.4 pounds?

34% + 13.5% = 47.5%

(.475)(23) = 10.925

~11 kittens

2. Given the times required for a group of 65 students to complete the physical fitness obstacle course result in a normal curve, and that the mean time 21 minutes and the standard deviation is 4, answer the following:



a. What percent took longer than 29 minutes?

2.5%

b. How many students took longer than 29 minutes?

(.025)(65) = 1.625 ~2 students

c. What percent took less than 29 minutes?

97.5%

d. How many students took less than 29 minutes?

(.975)(65) = 63.375

~63 students

e. What percent took between 13 and 29 minutes?

95%

f. How many students took between 13 and 29 minutes?

(.95)(65) = 61.75

~62 students

g. What percent took longer than 17 minutes?

84%

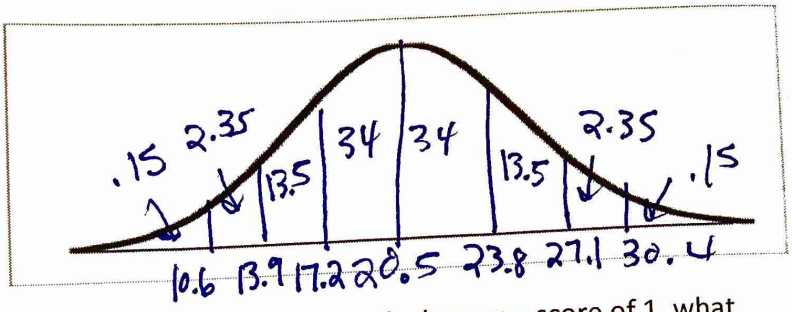
h. How many students took longer than 17 minutes?

(.84)(65) = 54.6

~55 students

deviation is 3.3 years.

Create a normal distribution curve.



a) Estimate the probability of a snake living between 27.1 and 30.4 years.

2.35%

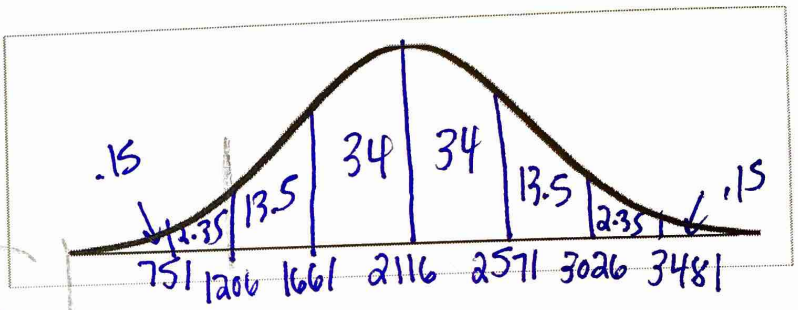
b) Estimate the probability that a snake lives more than 13.9 years

97.5%

c) If a certain snake has a z – score of 1, what percentile does it fall in?

84%

4. Suppose that the distribution of monthly earnings for all people who possess a bachelor's degree is known to be bell-shaped and symmetric with a mean of $2116 and a standard deviation of $455. Create a normal distribution curve and answer the following:



a) What percentage of the individuals with a bachelor's degree earn less than $1661 a month?

16%

b) What percentage of these individuals earn more than $1206 a month?

~~2.5%~~ 97.5%

c) What percentage of individuals earn between $3026 and $3481 a month?

2.35%

d) If this data was taken from 5,000 people with a bachelor's degree, find the number of people making the specified amounts in parts a), b), and c)

a) (.16)(5000) = 800

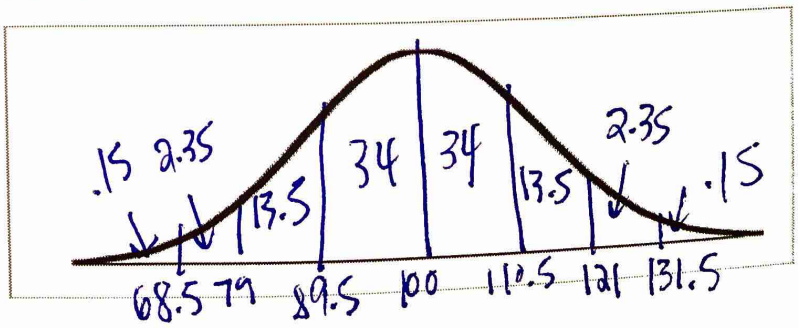
b) (.975)(5000) = 4875

c) (.0235)(5000) = 117.5 → 118

e) If someone has a z – score of -1, what percentile do they fall in?

16%

5. The IQ scores of all teenagers in the US in normally distributed with a mean of 100 and a standard deviation of 10.5, create a normal curve and answer the following:



a. What % of teenagers have an IQ score between 89.5 and 121?

81.5%

b. What % have less than a 79?

2.5%

c. What % are between 110.5 and 131.5?

15.85%