

Target 11-1**RETAKES WORKSHEET**

T 11-1: I can identify types of data collection and improve flaws in the design.

For each of the following scenarios:

- Identify each as an experiment, survey, or observational study.
- Identify the sample and population
- The designs below are flawed, explain why and make a suggestion for improvement.

1) A high school student asks 15 of her friends to identify what the best place in town to buy coffee is. She finds that all of them but one prefer The Crazy Café and publishes this as the "Best Coffee Place in Town" in her high school newspaper.

a) Survey

b) Sample: 15 friends

Population: all of town

c) Not random. Bias group. Ask random people in town.

2) A researcher randomly generates phone numbers to ask about political affiliation preference. These calls go out at 10am to 50,000 people and responses are documented for information to be used for political candidates to use around the US.

a) Survey

b) Sample: 50,000 people

Population: US

c) 10am - Not all home

1. A golf club manufacturer wants to test whether using a new type of club lowers golf scores. A random sample is taken. Golfers on the local college team are in the experimental group and are given the new club to use, and other students from the same college are in the control group and are asked to use their old clubs.

a) experiment

b) Sample: college students

Population: golfers

c) Golfers will play better than new golfers.

Use all same level or mix levels in both groups.

Target 11-2 RETAKE WORKSHEET Use both of the following data sets to answer questions a- d:



1. Ms. Lingle's 3rd and 4th period test scores for Chapter 7.

Period 3	
Data	Frequency
76	1
81	2
83	1
84	2
85	4
87	2
88	3

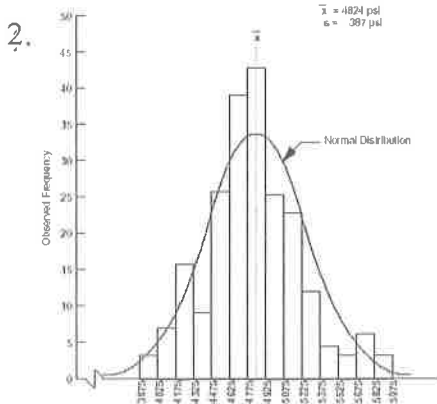
L3

Period 4	
Data	Frequency
79	1
82	1
84	2
86	3
87	3
90	3
92	1
93	1

L4

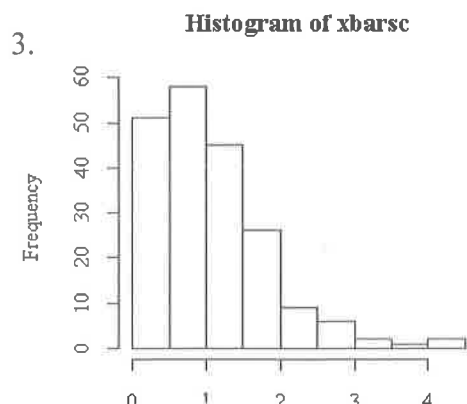
<p>Create and label a histogram. Label approximately where your mean, median and mode are located.</p>	<p>Create and label a histogram. Label approximately where your mean, median and mode are located.</p>
<p>a. Period 3</p> 	<p>a. Period 4</p> 
<p>b.</p>	<p>b.</p>
<p>Create and label a box and whisker plot with scale.</p>	<p>Create and label a box and whisker plot with scale.</p>
<p>c.</p> <p>Type: <i>Approx N.</i></p> <p>Center:</p> <p>Spread:</p>	<p>c.</p> <p>Type: <i>App Norm</i></p> <p>Center:</p> <p>Spread:</p>

In questions 2-3, **mark** approximately where the **mean** and **median** would be on each graph. Determine distribution and which would be the appropriate measure of center and spread to use for each graph.



Center:

Spread:



Center:

Spread:

T 11- 3 RETAKE WORKSHEET: I can construct a relative frequency table and find an expected value.

For problems 1-2, determine if each situation is experimental or theoretical:

To prepare necklace-making kits, three camp counselors pull beads out of a box, one at a time. They discuss the probability that the next bead pulled out of the box will be red. (There are only red, white and blue beads in the box.)

1. Claire said that $P(\text{red}) = \frac{1}{3}$ because 15 of the last 45 beads she pulled out were red.

EXP

2. Sydney said that $P(\text{red}) = \frac{1}{3}$ because the box label says that 1000 out of the 3000 beads is red.

THEOR.

Find the expected value of each scenario in questions 3-4. Show your work.

3. Find the expected winnings for the following lottery:

Winnings	\$1	\$5	\$25	\$100	\$10,000
# of winners	10,000	100	25	10	1

10136

$$E(x) = \$2.18$$

4. At Tucson Raceway Park your horse, Soon-to-beat-you, has a probability of $\frac{1}{20}$ of coming in first place, a probability of $\frac{1}{10}$ of coming in second place, a probability of $\frac{1}{5}$ for third place and a probability of $\frac{1}{4}$ of coming in fourth place. First place pays \$5,500 to the winner, second place \$4,500 and third place \$1000, and 4th place is \$250. **Create a relative frequency table and find the expected value of the winnings.** Is it worthwhile to enter the race if it costs \$1,000?

5500 4500 1000 250 0
 $\frac{1}{20}$ $\frac{1}{10}$ $\frac{1}{5}$ $\frac{1}{4}$ $\frac{1}{20}$

$$E(x) = 987.5 - 1000$$

NO.
 -12.5

5. A new game at the carnival costs \$3 to play. Using a 6 sided die if you roll a 5 or higher you win five dollars. If you roll a four win nothing but if you roll a three or lower you owe three dollars. **Create a relative frequency table and find the expected value of the winnings.** Would you play the game? Explain why or why not. Show all work for credit!

5, 6 4 3, 2, 1
 5 0 -3
 $\frac{2}{6}$ $\frac{1}{6}$ $\frac{3}{6}$
 $\frac{10}{6} + \frac{0}{6} + \frac{-9}{6} = \frac{1}{6}$

$$E(x) = \frac{1}{6} - 3 = -2\frac{5}{6} = -2.83$$

NO

6. During a football game your team is at fourth down and you are feet from the touchdown line. You have three options, one run the ball and score 6 points (successful 6 out of 10 times.), two kick a field goal and score 3 points (successful 3 out of 10 times.) and the third option is not being able to score any points (this only happens 1 out of 10 times.). Create a relative frequency table and find your expected number of points your team will earn.

1	6pts	6/10	36/10
2.	3pts	3/10	9/10
3.	0	1/10	0/10
			45/10

$$E(x) = 4.5 \text{ points}$$

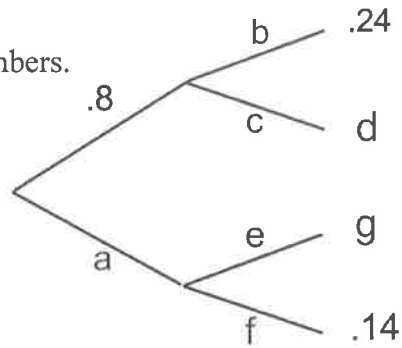
Tree Retake Worksheet

11-4: I can use Tree diagrams to find probabilities.

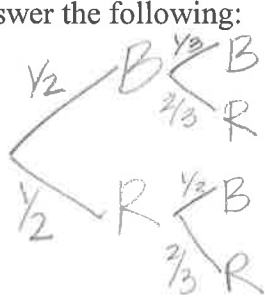
1. Use the tree diagram on the right to find the missing numbers. Show your work!

a = .2
 b = .3
 c = .7
 d = .56

e = .3
 f = .7
 g = .06



2. Create a tree diagram for the probabilities of rolling each die once. One die has 3 black sections and 3 red sections (all equal). Another die has 2 black section and 4 red sections (all equal). Make a tree diagram and then answer the following:



B and B
 B and R
 R and B
 R and R

$\frac{1}{2} \cdot \frac{1}{3} = \frac{1}{6}$
 $\frac{1}{2} \cdot \frac{2}{3} = \frac{2}{6} = \frac{1}{3}$
 $\frac{1}{2} \cdot \frac{1}{2} = \frac{1}{4}$
 $\frac{1}{2} \cdot \frac{2}{3} = \frac{1}{3}$

a. What is the probability of getting red twice?

$P(RR) = \frac{1}{3}$

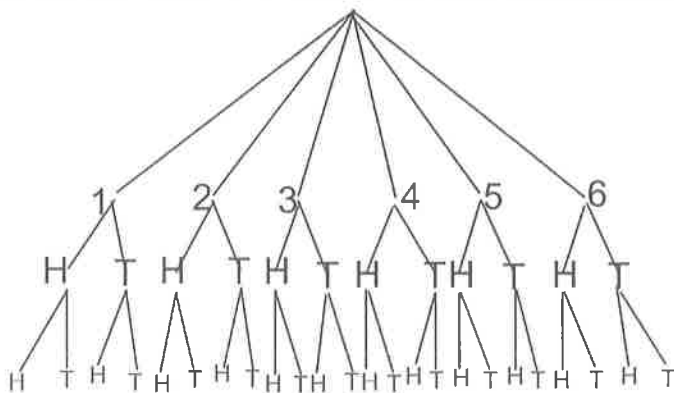
b. What is the probability of getting black at least once?

$P(BB \text{ or } BR \text{ or } RB) = \frac{1}{6} + \frac{2}{6} + \frac{1}{6} = \frac{4}{6} = \frac{2}{3}$

c. What is the probability of getting the same color twice?

$P(BB \text{ or } RR) = \frac{1}{6} + \frac{2}{6} = \frac{3}{6} = \frac{1}{2}$

3. A student rolls a 6-sided die one time and flips a coin twice. Use the tree diagram to answer the following questions.



$3HT = \frac{1}{24}$
 $3TH = \frac{1}{24}$

a. What is the probability of rolling a six, flipping a head and then tails in that order?

$P(6HT) = \frac{1}{6} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{24}$

b. What is the probability of rolling a 3 and flipping exactly one head?

$\frac{1}{24} + \frac{1}{24} = \frac{2}{24} = \frac{1}{12}$

c. $P(H \text{ and } T \text{ and } \text{Even \#}) =$

$2HT \text{ or } 4HT \text{ or } 6HT$
 $\frac{1}{24} \quad \frac{1}{24} \quad \frac{1}{24}$
 $\frac{3}{24} = \frac{1}{8}$

VENN RETAKE WS

T 11-5: I can use Tree diagrams to find probabilities.

1. Find the probability of:

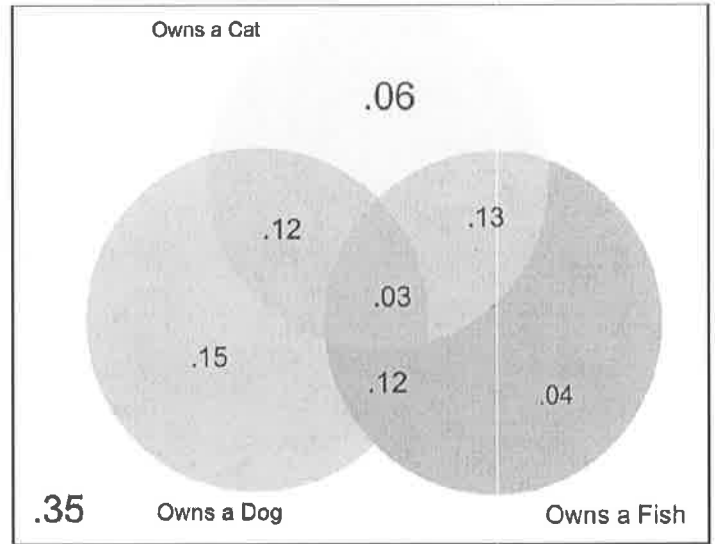
a. $P(C) = .34$

b. $P(C \text{ and not } D) = .19$

c. $P(C | D) = \frac{.15}{.42} = .36$

d. $P(C \text{ or } D) = .61$

e. $P(\text{Not } C \text{ and Not } D \text{ and Not } F) = .35$



2. Create a Venn Diagram

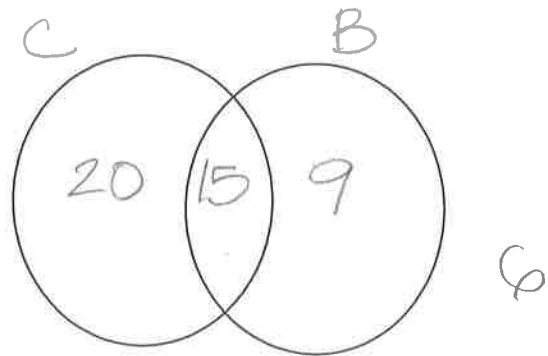
50 people were surveyed; they were asked what type of fast food they liked. 24 people said they liked burgers, 35 people said they like chicken and 15 people said they liked both burgers and chicken. Create a Venn diagram with the following information and answer the following questions.

a. $P(\text{Burgers}) = 24/50$

b. $P(\text{Chicken}) = 35/50$

c. $P(\text{Burger} | \text{Chicken}) = \frac{15}{35}$

d. $P(\text{Not Burger and Not Chicken}) = 6/50$



3. Fill in the following Venn diagram using the probabilities given.

Chocolate (C)

Vanilla (V)

✓ $P(S) = \frac{8}{25} = \frac{32}{100}$

✓ $P(V \text{ and } C) = \frac{19}{100}$

✓ $P(\text{of two kinds}) = \frac{8}{25} \cdot \frac{32}{100}$

$P(S \text{ or } V) = \frac{71}{100}$ ✓

