TEST Review: Statistics & Sampling

Name:_____

7th Grade Math

Show work on all problems for partial credit. If your answer is incorrect and you did not show work, you will not earn any partial credit for that problem.

1) Jack scored the following points in his 10 basketball games: 10, 11, 7, 8, 10, 5, 8, 4, 9, 7

a) Find the mean score for his points
Round to the nearest tenth

10+11+7+8+10+5+8+4+9+7 = 79

79/10 = 7.9 points

b) Find the median score for his points

4, 5, 7, 7, (8, 8), 9, 10, 10, 11

8 points

c) Find the mode(s)

7, 8, 10

d) Find the range

11 − 4

7 points

e) Which of the above is the best way to represent this data (the best measure of central tendency)? WHY?

The mean is the best because there are no outliers.

2) Mrs Hodges graded the following test scores in her class: 94, 80, 78, 83, 95, 82, 68, 85, 78, 66, 90, 74, 55

a) Find the mean score on the test

1028/13 = 79.1

b) Find the median score on the test

55, 66, 74, 78, 78, (80, 82), 83, 85, 90, 94, 95

80

c) Find the mode(s)

78

d) Find the range

95 − 55

40

e) Which of the above is the best way to represent this data (the best measure of central tendency)? WHY?

The Mean is the best because there are no outliers.

f) What score does the 14th student need to receive in order for the class to average an 80%?

$$14 \cdot \frac{1028 + x}{14} = 80 \cdot 14$$

$$1028 + x = 1120$$

$$-1028 \quad -1028$$

$$x = 92$$

3) Anthony scores 8, 8, 5, 8, 7, 10, 7, 9 and 6 points in his first 9 basketball games. In order to average 10 points for the season, how many points will he have to score in his 10th game?

$$\frac{8+8+5+8+7+10+7+9+6+x}{10} = 10 \cdot 10$$

$$8+8+5+8+7+10+7+9+6+x = 100$$

$$68 + x = 100$$

$$-68 \quad -68$$

$x = 32$ points — This would be pretty tough!!

4) You decide you want to find out how many deer are in your woods in your back yard. You tag 345 deer and release them back in the wild. A year later, you collect a sample of 980 deer, 120 of which are tagged. Estimate the total deer population in that area.

$$\frac{345}{x} = \frac{120}{980}$$

$$\frac{120x}{120} = \frac{338{,}100}{120}$$

$x = 2817.5$ deer

or

2818 deer

5) Miss. Drayton surveyed 68 students in her math classes and asked them what their favorite class was. She had them put their names on the survey. The results are listed below.

Language Arts	5
Math	16
Social Studies	5
Science	10
PE	15
Art	12
Other	5

a) What **percent** of the students surveyed enjoyed Language Arts?

$\frac{5}{68} = .07 = 7\%$

b) What **percent** of the students surveyed enjoyed Art?

$\frac{12}{68} = .18 = 18\%$

c) What **percent** of the students surveyed enjoyed every class other than Math?

$68 - 16 = 52$ $\quad \frac{52}{68} = .76 = 76\%$

d) If there are 265 students in the 7th grade, estimate the number of 7th graders that like PE the most?

$\frac{15}{68} = \frac{x}{265}$ $\quad \frac{68x}{68} = \frac{3975}{68}$

$x = 58.46$ or 58 students

e) If there are 265 students in the 7th grade, estimate the number of 7th graders that like Art.

$\frac{12}{68} = \frac{x}{265}$ $\quad \frac{68x}{68} = \frac{3180}{68}$

$x = 46.8$ or 47 students

f) Who is the **sample** in this situation?

The 68 students in her math classes.

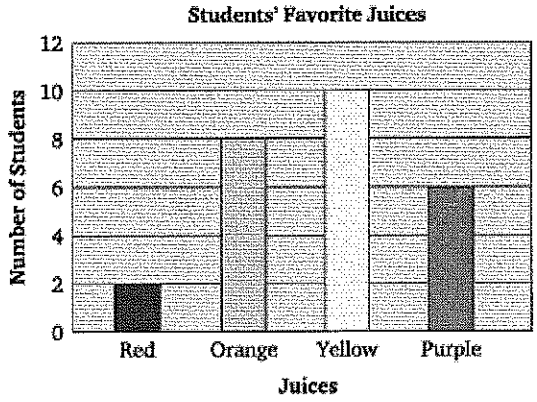
g) Who is the **population** in this situation?

The Whole 7th Grade (265 7th graders)

h) Is this a random sample or biased sample? WHY?

Biased. The students have to put their name on the survey & may put Math as their favorite just to please the teacher.

6) 26 kids were surveyed at Schavey Road Elementary, and asked what their favorite color juice was. Their results are below.



a) How many students favorite juice was yellow?

10 students.

b) What **percentage** of students preferred purple juice?

$\frac{6}{26} = .23 = 23\%$

c) If there are 600 students at Schavey Road Elementary School, predict how many would prefer orange juice as their favorite.

$\frac{8}{26} \times \frac{x}{600}$

$\frac{26x}{26} = \frac{4800}{26}$

$x = 184.6$ students

or

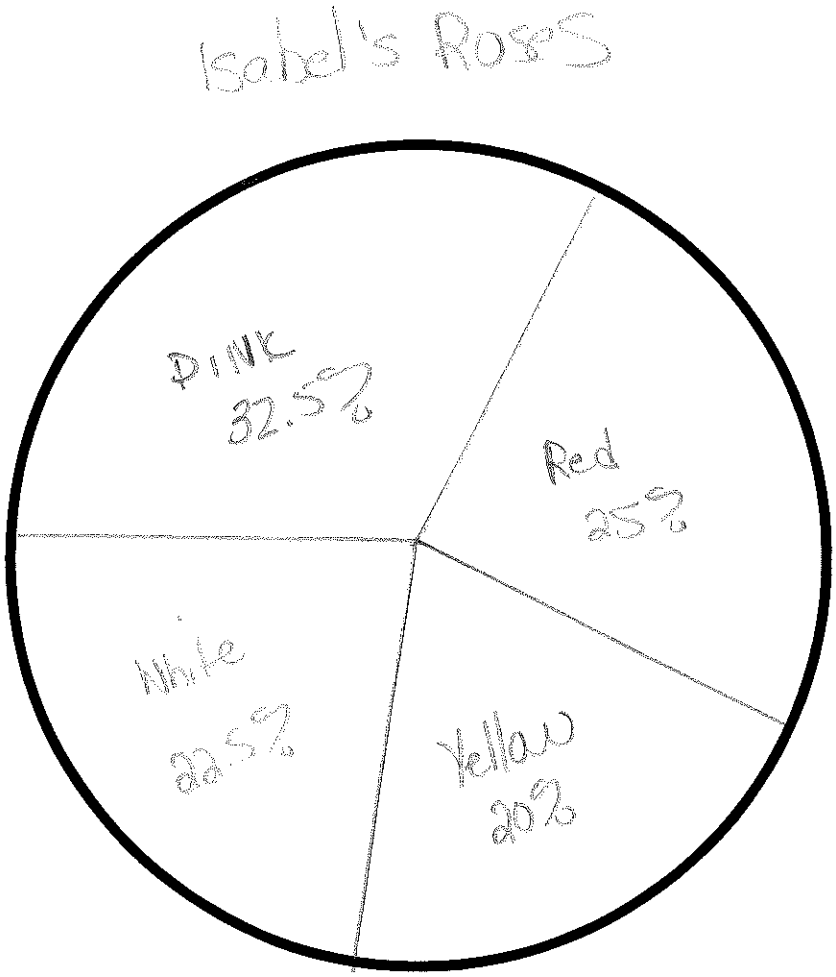
185 students

7) Christian gave Isabel 40 roses for Valentine's day. Here are the colors of the flowers listed below.

		%	CA
Pink	13	32.5	.325 · 360 = 117
Red	10	25	.25 · 360 = 90
Yellow	8	20	.2 · 360 = 72
White	9	22.5	.225 · 360 = 81
	40		

Use the data in the table to create a circle graph below. Make sure your circle graph has

1) a title
2) a key (if necessary)
3) a percent in each slice



Answers

1. a) 7.9 b.) 8 c) 7, 8, 10 d) 7 e) mean because there are no outliers
2. a) 79.1 b) 80 c)78 d)40 e) mean because there are no outliers f) 92%
3. 32
4. 2,818
5. a) 7% b) 18% c) 76% d) 58 students e) 47 students f) 68 students in math class g) 265 7^{th} graders
   h) biased because students have to put their names on the survey and may think Ms Drayton will be mad if they don't put "math"
6. a) 10 b) 23% c) 185
7. Pink= 33% Red=25% Yellow= 20% White= 23%