Grade 12 Essential Math – Statistics Review

Key

1. Jeff's soccer team scored the following number of goals in its last 10 games:

7, 2, 4, 7, 0, 1, 3, 2, 6, 1

a) What was the team's mean number of goals scored per game?

$\frac{33}{10} = 3.3$ goals.

b) What was the team's median number of goals scored per game?

0 1 1 2 2 3 4 6 7 7

$\frac{2+3}{2} = 2.5$ goals.

c) What was the range of goals scored per game?

$7 - 0 = 7$

d) What was the mode?

1, 2, and 7 all are modes

*useless then

e) Which measure of central tendency would best express the "average" number of goals per game?

tough one - my "guess" is mean but...

2. The Miller football team has offensive drives of 45 yards, 43 yards, 24 yards, 21 yards, and 44 yards. The coach wants the team to achieve a mean of 35 yards per drive for the game.

a) What must the length of the next offensive drive be if the team wants to meet this goal?

45 + 43 + 24 + 21 + 44 = 177 so far

Needs 35 × 6 = 210 games So 210 − 177 = 33

Next offensive drive needs to be at least 33 yards.

b) Based on the previous drives, is this goal reasonable?

yes, it is in the middle of the previous 5 drives.

3. A data set contains the following values:

1, 3, 9, 5, 5, 20, 8, 4, 6, 7

a) Calculate the arithmetic mean.

$\frac{68}{10} = 6.8$

b) Identify any outliers and explain what they do to the mean.

I don't do much but 20 increases mean – it is so much bigger.

c) Calculate a 20% trimmed mean.

take off 2 scores.

68 − 20 − 1 = 47 (high, low) $\frac{47}{8} = 5.875$

4. Margaret earned marks of 85%, 72%, 65%, and 90% on four tests in math this term.

a) If each test were worth the same percentage of her term mark, what would her final mark be?

$\frac{85+72+65+90}{4} = \frac{312}{4} = 78\%$

b) What was her term mark if the first test was worth 10%, the second and third were worth 20% each, and the fourth test was worth 50%?

$85 \times .1 = 8.5$
$72 \times .2 = 14.4$
$65 \times .2 = 13$
$90 \times .5 = 45$
80.9%

5. Last shift, a waitress earned 2 tips of \$6.00, 3 tips of \$8.00, 3 tips of \$10.00, and 6 tips of \$12.00.

a) Calculate the mean number of tips.

$(2 \times 6) + (3 \times 8) + (3 \times 10) + (6 \times 12)$
$12 + 24 + 30 + 72 = \frac{138}{14}$

\$9.86

b) Calculate the median number of tips.

inside 10 group

\$10

c) Identify the mode.

mode is \$12.

the data mode is most useful.

6. A fisherman caught a number of fish on the weekend. Their lengths were:

165 cm, 175 cm, 154 cm, 162 cm, 178 cm, 182 cm, 190 cm, 167 cm, 155 cm, 172 cm, 143 cm, 187 cm

Calculate the percentile rank of a fish that was 182 cm long.

B = 9
n = 12

$\frac{9}{12} \times 100 = 75^{th}$ percentile.

7. Ted and Tamara have just completed their English Provincial Exam. There were 205 people writing the exam.

a) If 90 of the students scored lower than Ted on the exam, what was his percentile rank?

$\frac{90}{205} \times 100 = 43.9$

44^{th} percentile.

b) If 50 of the students scored higher than Tamara and 7 people got the same score as her, what was her percentile rank?

50 + 7 = 58 equal or above.

147 below

$\frac{147}{205} \times 100 =$ P 72

c) What can you say about how Ted and Tamara's scores compare to each other?

Nothing about their scores.
Their ranks don't tell anything about their personal score.

8. Jerry participated in a survey of people's wages in his town. He learned that his wage was in the 30th percentile, and that 2000 people were surveyed.

a) How many people surveyed earn more than Jerry?

70% x 2000

= 1400 people.

b) How many people earn less than Jerry?

30% x 2000

= 600 people

c) If the median wage is $18.75 per hour what is Jerry's wage?

- can't say although he will be making less than that.

d) The mayor of Jerry's town gives <u>everyone</u> a $2.00 per hour wage increase. What is Jerry's percentile rank now?

stays the same because everyone changes too,

9. Wendy wrote 5 tests

- $66 + 67 + 73 + 81 + 87 = \frac{374}{5} = 74.8\%$ average.
- To get 80% with 6 tests, Wendy would need $80 \times 6 = 480$ points $\frac{480}{6} = 80\%$.
- Wendy has 374 so far.
- $480 - 374 = \frac{106}{5}$. She would need 106% on the next test!