Key

Stats Practice Test (FOM 11) | Unit 4

Name: _____ Partner: _____ Block: ____

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ **1.** Determine the range of the following test scores.
History Test 1 Scores (out of 100)

90	84	77	66
89	84	77	65
86	82	75	65
86	81	72	61
84	79	70	56

56 − 90 = 34

A. 90 **B.** 34 **C.** 56 **D.** 78

____ **2.** Determine the median of the following test scores.
History Test 1 Scores (out of 100)

90	84	77	66
89	84	77	65
86	82	75	65
86	81	72	61
84	79	70	56

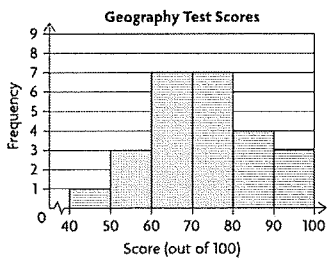
$\frac{77+79}{2} = 78$

A. 56 **B.** 79 **C.** 78 **D.** 77

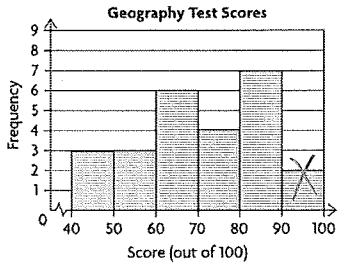
____ **3.** Which histogram represents the following test scores?
Geography Test 1 Scores (out of 100)

98	83	81	74	62
94	83	78	72	61
92	82	77	72	55
89	82	75	66	53
84	82	75	62	44

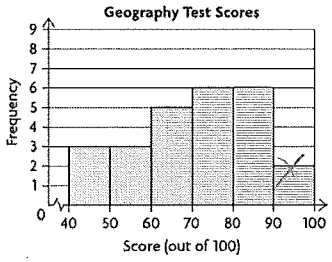
A.



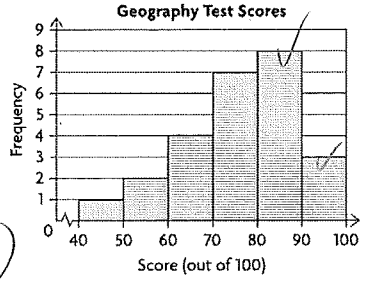
B.



C.



D.



___ **4.** Environment Canada compiled data on the number of lightning strikes per square kilometre in Alberta and British Columbia towns from 1999 to 2008.

0.42	0.04	0.81	0.40	0.03	0.74
0.28	0.03	0.70	0.23	0.03	0.66
0.13	0.02	0.61	0.12	0.01	0.58
0.10	0.00	0.49	0.07	1.08	0.43
0.05	0.91	0.42	0.04	0.88	

Which range of data occurs most frequently?

A. 0.20–0.29 **B.** 0.10–0.19 **C.** 0.00–0.09 **D.** 0.30–0.39

2 3 10 0

___ **5.** At the end of a bowling tournament, three friends analyzed their scores.
Lada's mean bowling score is 125 with a standard deviation of 27.
Quinn's mean bowling score is 182 with a standard deviation of 28.
Kamal's mean bowling score is 170 with a standard deviation of 20.

Who is the more consistent bowler?

A. Impossible to tell. **B.** Quinn **C.** Kamal **D.** Lada

___ **6.** A pear orchard has 20 trees with these heights, given in inches.

110	83	104	95
88	80	115	106
97	100	98	93
92	117	75	83
122	115	89	105

1967/20

Determine the mean, to one decimal place.

A. 99.4 in. **B.** 101.4 in. **C.** 98.4 in. **D.** 100.4 in.

___ **7.** Chinedu recorded the time it takes him to get to school using three different routes.

Hour	1	2	3	4	5
Route 1 (min)	13	15	12	12	16
Route 2 (min)	20	18	20	12	17
Route 3 (min)	16	17	15	17	22

lowest standard deviation

$\sigma = \sqrt{\frac{\sum (x-\bar{x})^2}{n}}$

x $(x-\bar{x})^2$

On which route does Chinedu have a more consistent travel time?

A. Route 1 **B.** Route 2 **C.** Route 3

___ **8.** A set of data is normally distributed. What percent of the data is within one standard deviation of the mean?

A. about 95% **B.** about 50% **C.** about 68% **D.** 100%

___ **9.** A set of data is normally distributed. What percent of the data is greater than the mean?

A. about 95% **B.** 100% **C.** about 68% **D.** about 50%

___ **10.** A teacher is analyzing the class results for a physics test. The marks are normally distributed with a mean (μ) of 76 and a standard deviation (σ) of 4.
Determine Guy's mark if he scored $\mu + 2\sigma$. $= 76 + 8 = 84$

A. 80 **B.** 72 **C.** 84 **D.** 68

___ **11.** Determine the *z*-score for the given value.
$\mu = 120$, $\sigma = 10$, $x = 125$

$z = \frac{125 - 120}{10}$

A. –2 **B.** 0.5 **C.** –0.5 **D.** 2

___ **12.** Determine the percent of data to the left of the *z*-score: $z = 1.44$.

use table

A. 94.95% **B.** 95.91% **C.** 93.82% **D.** 92.51%

___ **13.** Determine the percent of data between the following *z*-scores:
$z = -1.50$ and $z = 1.50$.

use table then subtract

A. 47.20% **B.** 100% **C.** 94.41% **D.** ~~88.82%~~ 86.64%

Short Answer

14. Environment Canada compiled data on the number of lightning strikes per square kilometre in Saskatchewan and Manitoba towns from 1999 to 2008.

2.03	1.31	0.25	1.03	1.20	0.17
0.99	1.01	0.24	0.94	0.92	0.09
0.86	0.71	0.05	0.81	0.63	0.01
0.80	0.58	0.00	0.72	0.49	0.52
0.43	0.46	0.40			

Complete the frequency table.

Lightning Strikes (per square kilometre)	Frequency
0.00–0.49	11
0.50–0.99	11
1.00–1.49	4
1.50–1.99	0
2.00–2.49	1

Problem

15. Joannie and Alex are trying to control the number of text messages they send. They record the number they send every day in April.

Joannie: 32, 14, 22, 33, 18, 25, 26, 20, 32, 16, 18, 25, 31, 34, 3, 8, 32, 28, 25, 18, 32, 21, 9, 10, 27, 18, 29, 22, 15, 20

Alex: 24, 0, 3, 14, 29, 24, 25, 30, 12, 18, 22, 30, 16, 19, 7, 12, 26, 21, 22, 27, 5, 19, 18, 8, 21, 25, 20, 18, 13, 15

a) Choose an interval width so you have seven intervals.

b) Create a frequency table for the data.

range: $34 - 0 = 34$

$\frac{34}{7} = 4.85 \rightarrow 5$ is a good interval

16. Sarena keeps track of the amount she spends, in dollars, on weekly lunches during one semester:

18	24	27	25	28	36
23	31	24	30	37	29
30	18	28	27	17	27

a) Determine the range, mean, and standard deviation, correct to ~~two~~ one decimal places.

b) Remove the greatest and the least weekly amounts. Then determine the range, mean, and standard deviation for the remaining amounts.

c) What effect does removing the greatest and the least amounts have on the three values?

range: $37 - 17 = 20$

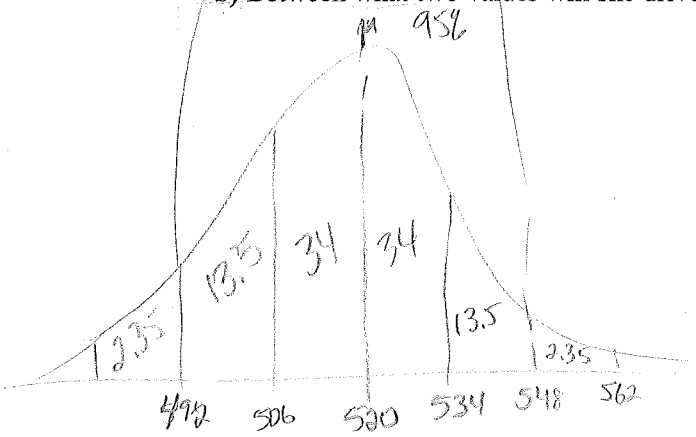
mean: $\frac{\text{add}}{18} = 26.6$

$\sigma = \sqrt{\frac{\Sigma(x-\bar{x})^2}{18}} = 5.4$

17. Yumi always waits until her gas tank is nearly empty before refuelling. She keeps track of the distance she drives on each tank of gas. The distance varies depending on the weather and the amount she drives on the highway. The distance has a mean of 520 km and a standard deviation of 14 km.

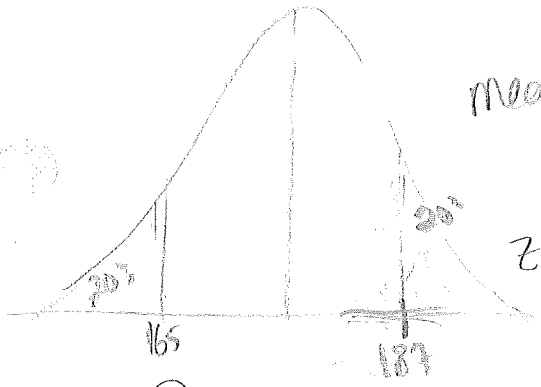
a) What percent of the time does she drive between 534 km and 562 km on a tank of gas? 13.5+2.35 = 15.85%

b) Between what two values will she drive 95% of the time? 494-548



18. In a population, 80% of the adults are taller than 165 cm and 20% are taller than 187 cm. Determine the mean height and standard deviation for this population.

so 20% are less than 165cm



$\text{mean} = \frac{165+187}{2} = 176\text{cm}$

z for 187: (80%) less than 187, so use table → 0.84

$z = \frac{x-\mu}{\sigma}$

$\sigma = \frac{x-\mu}{z} = \frac{187-176}{0.84} = 13.1\text{cm}$

19. A manufacturer of computer screens has determined that the screens require servicing after a mean of 70 months, with a standard deviation of 8.8 months. What length of warranty should be offered, if the manufacturer wants to repair less than 0.5% of the screens under the warranty?

$\mu = 70 \quad \sigma = 8.8 \quad x = ?$

z → look at table for 0.5% → -2.58

$z = \frac{x-\mu}{\sigma}$

$-2.58 = \frac{x-70}{8.8}$

$x = 47$ months