

Chapter 5 Review

- d 1. Determine the range of the following test scores.

History Test 2 Scores (out of 100)

95	85	72	62
92	84	72	59
89	80	70	52
88	78	68	40
85	73	67	32

- a. 72 c. 32
b. 95 d. 63

- b 2. Determine the mean of the following test scores.

History Test 2 Scores (out of 100)

95	85	72	62
92	84	72	59

- a. 72.0 c. 78.0
b. 77.6 d. 88.7

- a 3. The range of a set of data is 122 and the minimum value is 87. To display this data in a histogram, Nat chose intervals of 20 starting with 80–99. How many intervals will her histogram have?

- a. 7 c. 8
b. 10 d. 9

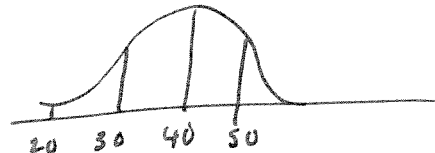
87 87 + 122 = 203
lowest highest

- c 4. A set of data is normally distributed. What percent of the data is greater than the mean?

- a. 100% c. about 50%
b. about 95% d. about 68%

- b 5. The ages of participants in a bonspiel are normally distributed, with a mean of 40 and a standard deviation of 10 years. What percent of the curlers are between 20 and 60?

- a. 27% c. 17.5%
b. 13.5% d. 32%



- d 6. 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 Olivia's mark if she scored $\mu - \sigma$.

- a. 84 c. 80
b. 68 d. 72

76 - 4

- a 7. A company measured the lifespan of a random sample of 30 light bulbs. Times are in hours.

985	1001	1024	1087	952	910	938	931	1074	1081
1078	1080	982	1108	1022	937	922	1017	1093	1115
880	1048	917	1086	935	936	986	1038	954	966

What value goes in the fourth row of this frequency table?

$-2.5 \Rightarrow 0.0062$

$1.5 \Rightarrow 0.9332$

$93.32\% - 0.62\% = 92.7\%$
Final answer!

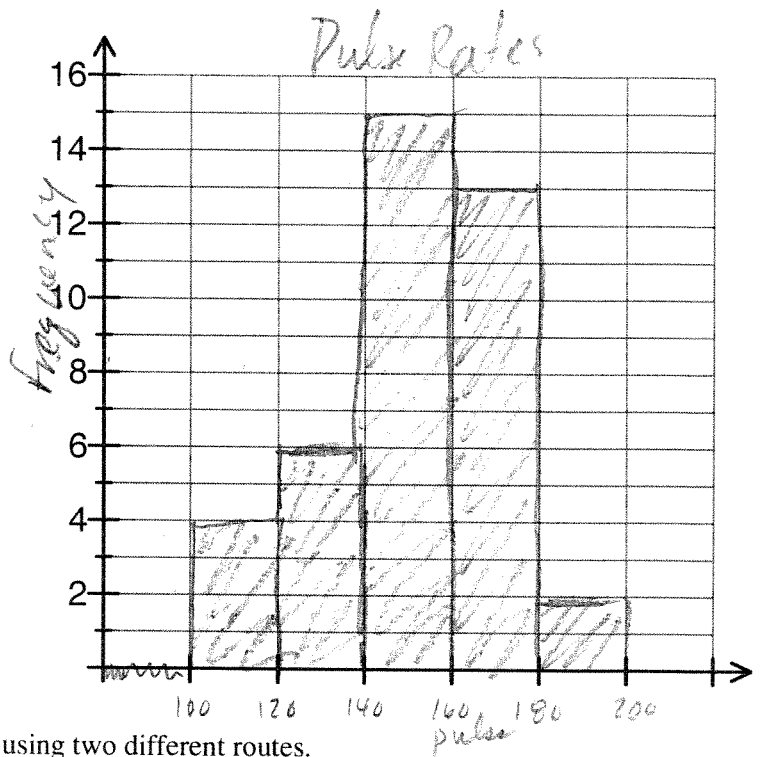
14. Four groups of students recorded their pulse rates after a 2 km run.

Group 1	126	168	158	192	146	166	104	164	116	138
Group 2	158	132	156	161	108	150	178	136	172	141
Group 3	136	174	156	176	150	166	142	156	130	182
Group 4	144	150	142	152	174	176	118	152	178	164

lowest 104
highest 192

- Make a frequency table with five intervals to organize the pulse rates. [3]
- Construct a histogram of the data and then draw a frequency polygon. [2]

Pulse Rates	Tally	Frequency
100 - 120		4
120 - 140		6
140 - 160		15
160 - 180		13
180 - 200		2



15. Jayma recorded the time it takes her to get to school using two different routes.

Hour	1	2	3	4	5
Route 1 (min)	12	8	11	12	8
Route 2 (min)	14	9	12	12	10

SD = 10.2
SD = 11.4

On which route does Jayma have a more consistent travel time?
(Hint: Find the standard deviation for each Route without the graphing calculator) Route 1 [5]

16. A hardware manufacturer produces bolts that have an average length of 1.22 in., with a standard deviation of 0.02 in. To be sold, all bolts must have a length between 1.17 in. and 1.25 in. What percent, to one decimal place, of the total production can be sold?

$z_1 = \frac{1.17 - 1.22}{0.02} = -2.5$ $z_2 = \frac{1.25 - 1.22}{0.02} = 1.5$

Use table [5]
Find %!

17. In a pre-election survey in Calgary, 18% of those surveyed said they were undecided about whom to vote for in the mayoral election. The survey is considered accurate to within 4.3 percent points, 99 times out of 100.

- Determine the confidence level and the confidence interval.
CL = 99% CI $18 \pm 4.3 \Rightarrow 13.7\% - 22.3\%$ [3]
- If there are 680 000 eligible voters in Calgary, state the range of the number of people who are undecided. [2]

13.7% of 680 000 22.3% of 680 000 93 160 - 151 640 people were undecided.

18. A tile company produces glass kitchen tiles that has an average thickness of 71 mm, with a standard deviation of 0.4 mm. For premium-quality tiles, the tiles must have a thickness between 70 mm and 71.5 mm. What percent, to the nearest whole number, of the total production can be sold as premium-quality tiles?
19. The average life expectancy of a specific breed of dog was determined to be 13.0 years with a standard deviation of 1.6 years. What is the probability that a given dog will live less than 10 years?
20. On the math placement test at Memorial University of Newfoundland, the mean score was 64 and the standard deviation was 12. If Mark's z-score was 0.8, what was his actual exam mark? (2 marks)

#18.

$$z_1 = \frac{x - \mu}{\sigma} = \frac{70 - 71}{0.4} = -2.5$$

$$z_2 = \frac{71.5 - 71}{0.4} = 1.25$$

use table to determine percent!

0.0062 0.8944

$$\% = 89.44\% - 0.62\% = 88.82\%$$

#19.

$$z = \frac{x - \mu}{\sigma} = \frac{10 - 13.0}{1.6} = -1.875 \quad \text{+ } -1.88$$

use table
0.0301

3.01% \Rightarrow to the left so leave as is

Probability is 3.01%

#20

$$z = \frac{x - \mu}{\sigma} \quad 0.8 = \frac{x - 64}{12} \quad x = 73.6$$