Chapter 5 Review

____ 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

____ 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

____ 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

____ 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%

____ 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 30?

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

____ 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

____ 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?

Lifespan (hours)	Frequency
850–899	1
900–949	8
950–999	6
1000–1049	
1050–1099	7
1100–1149	2

a.   6   c. 5
b.   4   d. 3

_____ 8. 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. Lada
b. Quinn
c. Kamal
d. Impossible to tell.

_____ 9. Determine the z-score for the given value.
$\mu = 120$, $\sigma = 10$, $x = 125$

a. –2
b. 0.5
c. 2
d. -0.5

_____ 10. Determine the percent of data to the left of the z-score: $z = -1.50$.

a. 6.81%
b. 7.35%
c. 6.68%
d. 8.08%

_____ 11. A poll was conducted about an upcoming election. The results are considered accurate within ±3.8 percent
points, 9 times out of 10.
State the confidence level.

a. 90%
b. 19%
c. 95%
d. 99%

_____ 12. The results of a survey have a confidence interval of 88.7% to 90.5%, 99 times out of 100.
Determine the margin of error.

a. ±0.9%
b. ±1.3%
c. ±0.7%
d. ±1.1%

_____ 13. In a recent survey of high school students, 42% of those surveyed said that the food in the cafeteria was
overpriced. The survey is considered accurate to within 6 percent points, 19 times out of 20.
If a high school has 1000 students, state the range of the number of students who would agree with the survey.

a. 520–640
b. 360–420
c. 420-480
d. 360-480

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

    a) Make a frequency table with five intervals to organize the pulse rates.   [3]

    b) Construct a histogram of the data and then draw a frequency polygon.   [2]

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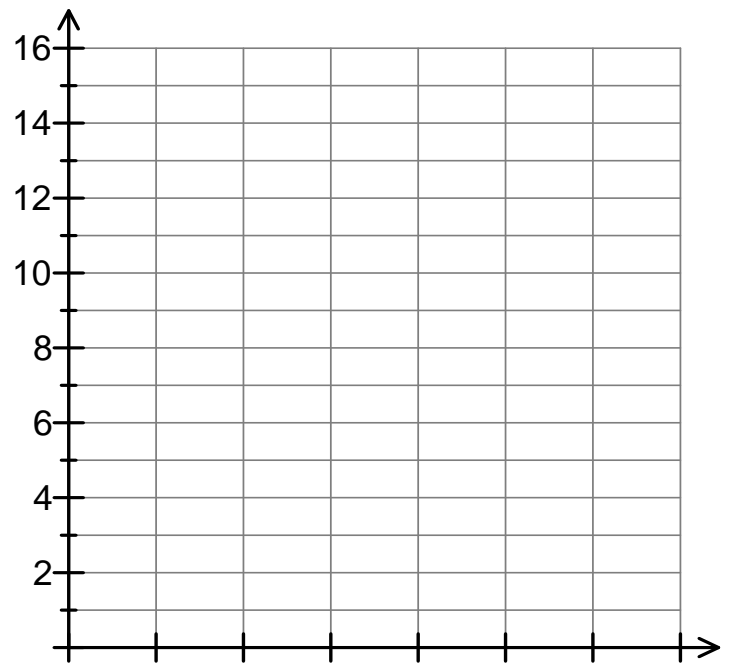
15. Jayma recorded the time it takes her to get to school using two different routes.

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

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

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?   [5]

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.
    a) Determine the confidence level and the confidence interval.   [3]

    b) If there are 680 000 eligible voters in Calgary, state the range of the number of people who are undecided. [2]

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 that 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)*