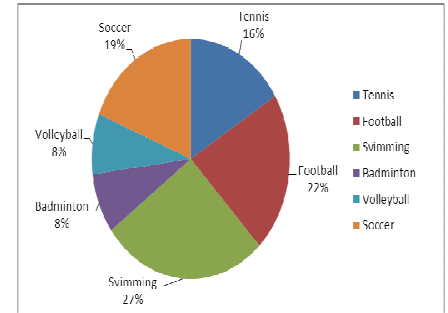


Answer all questions on a blank sheet of paper or graph paper. Full marks will only be awarded for full work – **show all your calculations!** Write your name on all pages.

[4] 1) The circle graph shows the favourite sport of grade 12 students in a high school.



a. What is the central angle of the sector representing students who prefer football?

$$22\% \text{ of } 360^\circ = 0.22 \times 360^\circ = 79.2^\circ$$

Therefore, the central angle of the sector representing students who prefer football is  $79.2^\circ$ .

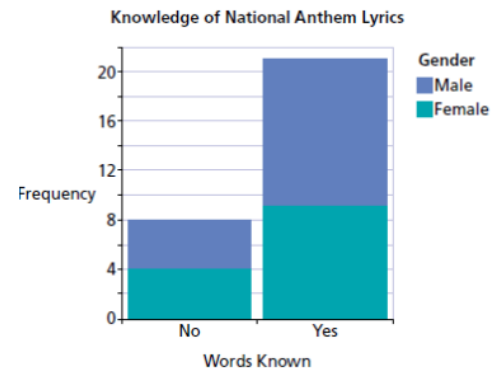
b. If the school has 1150 grade 12 students in all, how many students prefer volleyball or soccer?

$$8\% \text{ of } 1150 + 19\% \text{ of } 1150 = 27\% \text{ of } 1150 = 0.27 \times 1150 = 310.5$$

Therefore, 310 students prefer volleyball or soccer (311 students is an acceptable answer as well).

[3] 2) Students in Mrs. Gamma’s math class were asked if they know the words to the national anthem. According to the results shown to the right, do more females than males know the national anthem? Briefly explain.

	Males	Females	Total
Yes	12	9	21
No	4	4	8
Total	16	13	29



$$\frac{12}{21} \times 100\% \doteq 57.1\% \quad \text{Of males know the national anthem}$$

$$\frac{9}{21} \times 100\% \doteq 42.9\% \quad \text{Of females know the national anthem.}$$

OR

No, because 12 males know the national anthem while only 9 females know the national anthem. Therefore, more males know the words than females.

[1] 3) In a stem-and-leaf plot, the leaves represent the

- frequency of a data category
- final digits of the values in a data category**
- initial digits of a data category
- average of the data values

[1] 4) A histogram is most appropriate for describing

- the frequency distribution of discrete data
- the frequency distribution of continuous data**
- changes of data over time
- the median of a set of data

- [6] 5) The table below shows the number of calories a person might use while in-line skating at a comfortable pace.

<b>Time (min)</b>	7	3	18	12	35	25	11
<b>Energy Used (in calories)</b>	70	28	170	119	320	241	101

- Calculate  $S_1$ ,  $S_2$ , and  $S_3$ . Do not construct a median-median line for the data.
- Calculate the slope of the median-median line. What does the slope represent?

Solution:

- Rearrange the data first.

3    7    11    12    18    25    35  
28    70    101    119    170    241    320

Time (min)	Energy Used in Calories
3	28
7	70
11	101
12	119
28	170
25	241
35	320

Red – Interval I  
Blue – Interval II  
Black – Interval III  
 $S_1(5,49)$   
 $S_2(12,119)$   
 $S_3(30,280.5)$

- Use  $S_1(5,49)$  and  $S_3(30,280.5)$  to calculate the slope,  $m$ .

$$m = \frac{280.5 - 49}{30 - 5} = \frac{231.5}{25}$$

The slope represents the increase of the energy used as more time is spent in-line skating. For every 25 minutes spent, the number of calories increases by 231.5.