

PROBABILITY & STATISTICS TEST

Name: _____

1. June suspects that a dice may be biased. To test her suspicions, she rolls the dice 6 times and rolls 6, 6, 4, 2, 6, 6. *2 marks*

She concludes that the dice is biased because she expected to get only one 6. Do you agree with June's conclusion? *Briefly* justify your answer.

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2. In a school of 1500 high school students, a random survey is conducted into the preferred sport of high school students. The results are given below: *3 marks (2, 1)*

<u>Sport</u>	<u># of Votes</u>
Soccer	45
Basketball	30
Rugby	23
Track and Field	17
Other	15

- a) If a high school student is selected at random, estimate the probability that this student prefers either Rugby or Track and Field.

- b) Briefly explain why your answer is only an *estimate* of the probability.

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3. Brenda rolls one red die and one blue die. *2 marks*

- a) Draw a grid showing the possible outcomes.

- b) What is the probability that the number shown on the red die will be higher than the number shown on the blue die?

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4. A coin is tossed 3 times. What is the probability that the result will be **two** “heads” and **one** “tails”? *3 marks*

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5. Of 45 students that went to summer camp, 29 participated in the sailing activity (S), 22 participated in the table tennis competition (T), and 6 did neither of these two activities. *7 marks*
(2, 1, 1, 1, 1)

a) Draw a Venn diagram to represent this information:

b) Determine the probability that a randomly selected student participated in

(i) Sailing.

(ii) Both activities.

(iii) Table tennis, but not sailing.

(iv) Sailing, given that the student participated in at least one activity.

(v) Table tennis, given that the student did not go sailing.

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6. Five cards are marked with the numbers 1, 2, 3, 4, 5. *4 marks*
(1, 1, 2)
A card is randomly selected, its number is noted, it is replaced and a 2nd card is selected.
What is the probability that

a) Both cards are even numbers?

b) Both cards are odd numbers?

c) There is one even and one odd numbered card?

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10. 21 students are surveyed about how many hours of sleep they get each night. The results are shown in the frequency table below.

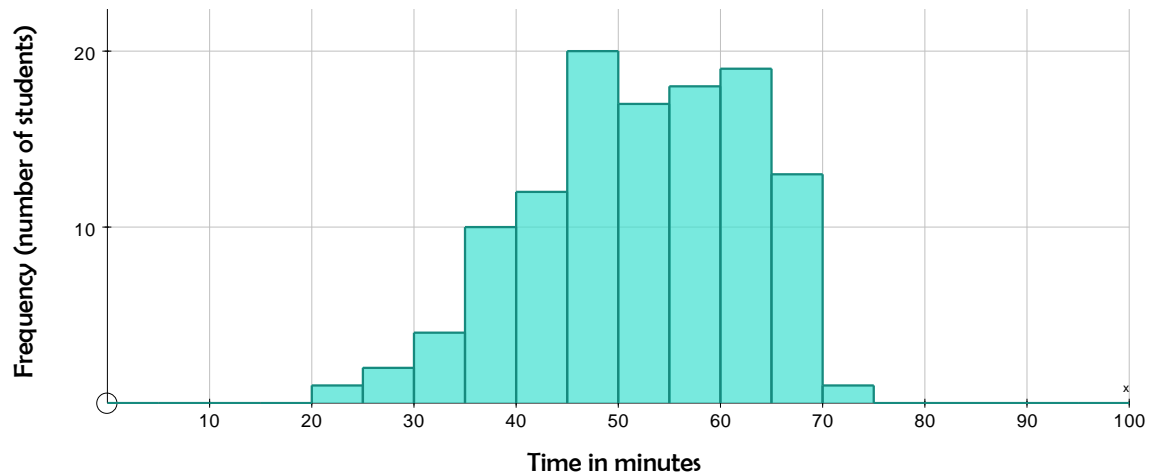
2 marks

Hours of Sleep (x)	Number of Students (f)	Cumulative frequency
4	2	
5	5	
6	4	
7	3	
8	4	
10	2	
12	1	

- a) Complete the cumulative frequency column.
- b) Determine the median.

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11. Students who live between 15 and 30 km from school are asked how many minutes they spend traveling to school. The results of the survey are shown in this histogram:

2 marks



New data is collected from additional students who live between 0 and 2 km from school. This new data is added to the survey results.

- a) Briefly describe the effect of the new data on the mean and median of the survey.
- b) Briefly describe the effect of the new data on the range of the survey.
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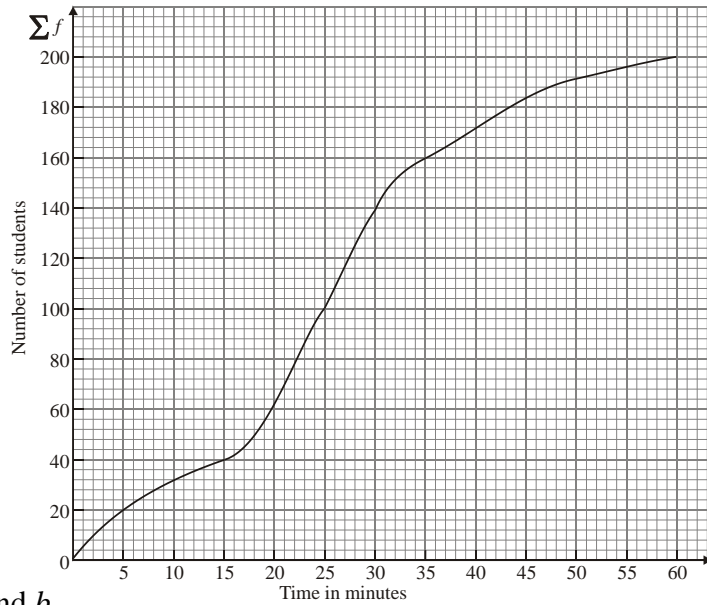
12. The cumulative frequency graph below has been drawn from a frequency table showing the time it takes a number of students to complete a computer game.

7 marks
(1, 1, 2, 1, 2)

a) How many students took 15 minutes or less to complete the game?

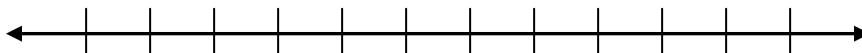
b) Estimate the median time taken to complete the game.

c) The middle 50% of times lie between a minutes and b minutes, where $a < b$.
Write down the values of a and b .



d) How many students took longer than 50 minutes?

e) Draw a box-and-whisker plot to represent the data shown in the cumulative frequency graph.

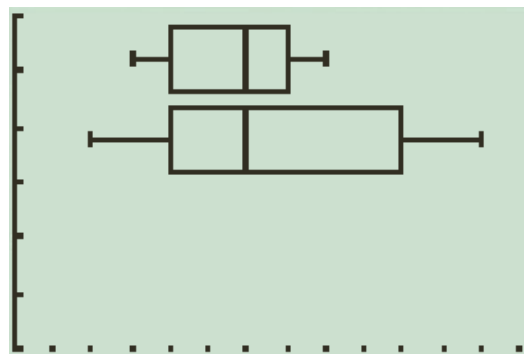


13. The box-and-whisker plots shown here represent the 800-meter running times from two grade 10 classes.

3 marks
(1, 2)

a) Which class would have the higher mean?

b) Explain how the distributions differ. Be specific.



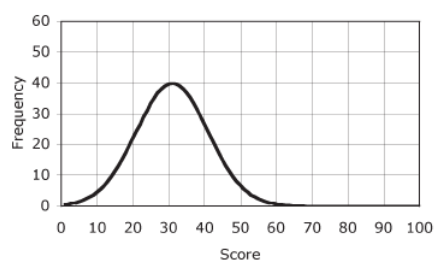
14. Consider the set of scores: 3, 0, 7, 2, 8, 3, 11, a , b . The mean of the scores is 5, the median of the scores is 4, and $a < b$. Find a and b .

3 marks

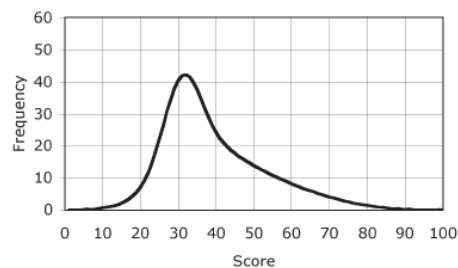
15. Match each histogram to its corresponding box-and-whisker plot:

2 marks

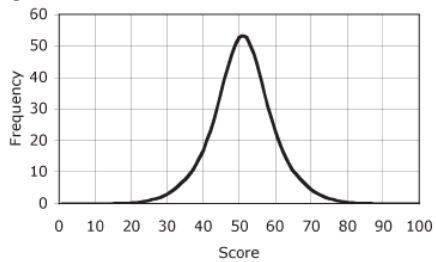
A



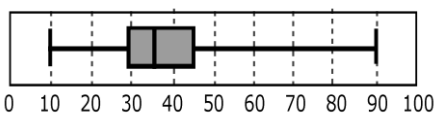
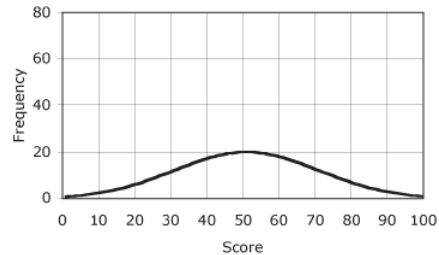
B



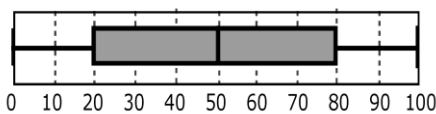
C



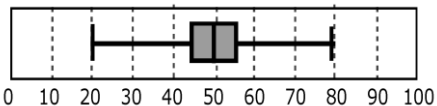
D



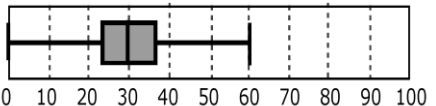
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