

Math 156 X01  
Test Three

Time: 50 minutes  
Total: 20 marks

Name: \_\_\_\_\_

1. [5 marks] State the order of the following expressions:

a)  $5n + 6 \log n$

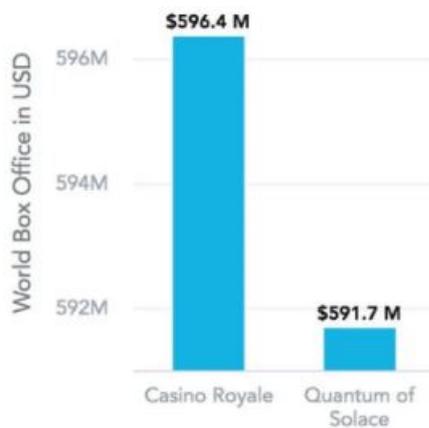
b)  $7(n!) + 4(2^n)$

c)  $6n^2 + 8(2^n)$

d)  $9(n!) + 3n^2$

e)  $4n(2 + 3 \log n)$

2. [1 mark] The graph below shows revenue (in US Dollars) for two different movies. State the primary problem with the graph.



3. [2 marks] An arithmetic sequence has  $a_{18} = 13$  and  $a_{41} = -424$ . Find  $d$ .

4. [2 marks] Find  $a_{18}$  for the sequence below. Assume that the first term is called  $a_1$ .  
4096, 2048, 1024, ...

5. [4 marks] Find the sum of the first 20 terms of:

a)  $5 + 4.8 + 4.6 + \dots$

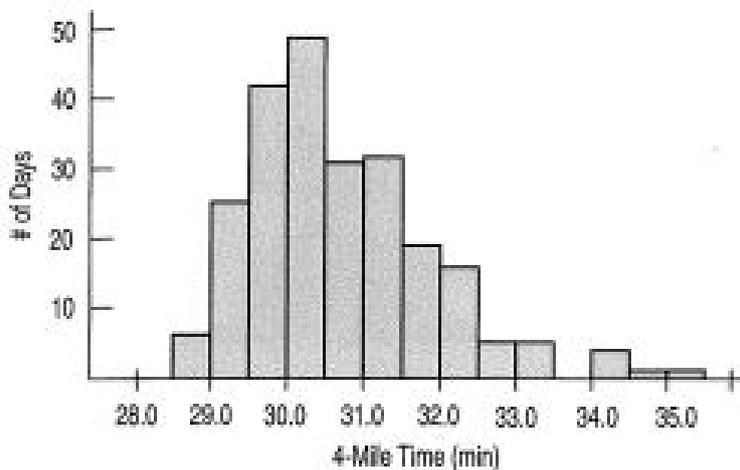
b)  $6 + 12 + 24 + \dots$

6. [2 marks] Camosun currently has 12,000 students. Camosun wants to know the ages of all these students. The records of 200 students are randomly selected, and the ages of these 200 students are analyzed.

a) How many measurements are in the sample?

b) How many measurements are in the population?

7. [2 marks] The histogram below shows the time (in minutes) someone took to run four miles, with the number of days on the vertical axis.



a) Is the data bimodal, unimodal symmetrical, unimodal skewed left, or unimodal skewed right?

b) State the mode or modes.

8. [2 marks] Circle all the following that are smaller than  $O(n^2)$ :

$O(n)$     $O(\log n)$     $O(2^n)$     $O(n \log n)$     $O(n^2)$     $O(1)$     $O(n!)$