

Student Name: _____
Please write your name on *every* page.

3 Section C

C1

What is the perimeter of an equilateral triangle with side length 4?

Answer to C1: _____

C2

What is the value of $3^4 - 4^3$?

Answer to C2: _____

C3

An Egyptian fraction is a fraction written as a sum of fractions of the form $\frac{1}{n}$. For example, $\frac{11}{12} = \frac{1}{2} + \frac{1}{3} + \frac{1}{6}$. Which regular fraction does the Egyptian fraction $\frac{1}{4} + \frac{1}{10} + \frac{1}{15}$ correspond to?

Answer to C3: _____

C4

A frog wants to cross a 100 metre long pond. He can swim across the pond at 5 metres per minute or he can jump across lilly pads at 8 metres per minute. Jumping is tiring, so the frog must rest for 1 minute after every 3 minutes of jumping before he is ready to jump again. How much longer does it take to swim across the pond than to jump across it.

Answer to C4: _____

C5

A sequence starts with 2, 1, 3, and each number after the second is obtained by adding the previous two numbers together. What is the 8th number in the sequence.

Answer to C5: _____

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C6

Jan is getting paid to do yard work, and her employer offers her two different payment plans for her 10 days of work. Under the first plan, Jan will make 100 dollars per day for 10 days of work, while under the second plan she will get paid 1 dollar for the first day of work and each day after that she will be paid double what she was paid on the previous day (so on day 2 she will be paid 2 dollars, on day 3 she will be paid 4 dollars, and so forth). How much more money will Jan make under the second plan than under the first?

Answer to C6: _____

C7

A letter of the alphabet has a value in terms of its position in the alphabet (for example, **A** has a value of 1 since it is first in the alphabet, **B** has a value of 2 since it is second, and **J** has a value of 10 since it is 10th). A word has a value equal to the sum of the value of its letters. For example, **FROG** has a value of $6 + 18 + 15 + 7 = 46$ since **F** is the 6th letter of the alphabet, **R** is 18th, **O** is 15th, and **G** is 7th. What is the value of the word **MATH**?

Answer to C7: _____

C8

A machine takes in a number as an input, and outputs the number of letters in the name for that number. For example, if you input 6, the machine outputs 3 since “six” has 3 letters. If you input 3, the machine outputs 5 since “three” has 5 letters. If you take 13 and input it to the machine, feed the output back into the machine as an input, and feed the output of the second input back into the machine again, what number do you get as the third output?

Answer to C8: _____