All questions should be submitted by 2pm on Thursday 6 December. Assignments can be submitted at your tutorial or to the MATH1040 assignment box (3rd floor, Priestley Building). **Make sure that your name, student number and assignment number are on each sheet of your answers.** Write your answers on a separate sheet of paper. You do not need a cover sheet nor do you need to include this question sheet. Solutions will be distributed in class later.

1. Simplify $4^3 - 3^4 + 2^{(⅓ \times 9)}$

2. Simplify the following expressions:

   a) $4x \times 2x + 7x + 5y - 3x$

   b) $c \times d \times 4 \div \dfrac{c}{2}$

3. Expand and simplify the following:

   a) $3(x - 4)$

   b) $(x + 3)(x - 6)$

4. Factorise the following expressions:

   a) $4t + 12$

   b) $-6h - 10$

5. Simplify $(3k + 9) \div (6k + 18)$

6. The final velocity of an object is given by the formula $v = u + at$, where u is the initial velocity, a is the acceleration and t is time. Find the final velocity of an object if $u = 4$, $a = 9.8$ and $t = 5$.

7. How many times do you need to write the fraction ⅓ to make the following statement true?

   ⅓ $\div$ ⅓ $\div$ ⅓ $\div$ ... $\div$ ⅓ $= 81$

8. Sarah was hungry one night and looked in the freezer to find a 4L tub of ice cream. She started eating the ice cream but so she wouldn't get in trouble for eating it all stopped after she had eaten half of it. The next night she was hungry again so she went back to the ice cream and stopped when she had eaten half of what was there. This went on for five nights in a row before her mother caught her. How much ice cream was left at the end of five nights?

9. Solve the following equations:

   a) $4r = 2r + 10$ b) $3(j + 2) = 4(j - 3)$ c) $\dfrac{x}{2} + 4 = 9$

   BONUS QUESTION is over the page

BONUS QUESTION 4 marks

Simplify

$$1 + \cfrac{1}{1 + \cfrac{1}{1 + \cfrac{1}{1 + \cfrac{1}{1 + 1}}}}$$

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