

# Quiz 3A, MTH 2010 - No Calculators

Dr. Graham-Squire, Spring 2017

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

1. (3 points) Here is a student's work on several multiplication problems:

$$\begin{array}{r} 12 \\ \times 38 \\ \hline 816 \\ 360 \\ \hline 1176 \end{array}$$

$$\begin{array}{r} 76 \\ \times 8 \\ \hline 5648 \end{array}$$

$$\begin{array}{r} 41 \\ \times 22 \\ \hline 82 \\ 820 \\ \hline 902 \end{array}$$

For which of the following problems is this student most likely to get the correct solution, even though he is using an incorrect algorithm? Explain your reasoning!

- (A)  $235 \times 17$
- (B)  $64 \times 46$
- (C)  $24 \times 12$
- (D)  $9 \times 13$

2. (2 points) Show how to easily solve each of the following problems mentally. You can calculate them directly (i.e. using a standard method) to check your work, but if you *only* do a direct calculation you will not receive full points.

- (a) 55% of 740
- (b)  $16 \times 125$

3. (2 points) There are 100 blocks in a bag, each of them a different color. If you pick 2 blocks out of the bag, how many different color combinations could you get? Explain your reasoning and/or show your work! Note that getting the blocks (red, black) is the same as getting the blocks (black, red).

4. (3 points) Use a rectangular array to explain why  $A \times B = B \times A$  for all numbers  $A$  and  $B$  (the commutative property). You can use an example to help your explanation, but your answer should generalize to any numbers and use the definition of multiplication.