Math 102 - Fall 2013 - Quiz #6 **Score:** _____ out of 10.

Name: _____ key

Show all work clearly and in order.

1. Rewrite the following expressions using exponents:
   (a) $5 \cdot 5 \cdot 5 \cdot 5 = 5^4$

   (b) $2 \cdot 5 \cdot 2 \cdot 2 \cdot 6 \cdot 6 \cdot 2 = 2^4 \cdot 5^1 \cdot 6^2$

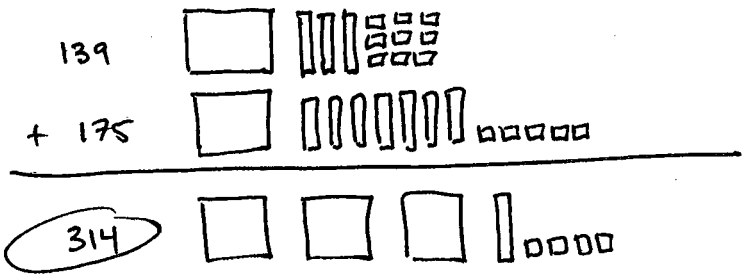
2. Rewrite the following with only one exponent:
   (a) $5^3 \cdot 5^2 = 5^{3+2} = 5^5$

   (b) $a^{40} \div a^{10} = a^{40-10} = a^{30}$

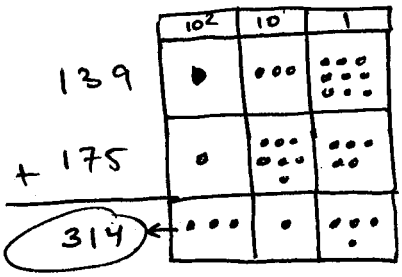
   (c) $a^{10} \div (a^2 \cdot a^3) = a^{10} \div a^5 = a^{10-5} = a^5$

   (d) $3^3 \div 9^2 = 3^3 \div (3^2)^2 = 3^3 \div 3^4 = 3^{3-4} = 3^{-1}$

3. Sketch the solution to $139 + 175$ using
   (a) Base 10 blocks.



   (b) Chip abacus.



   (c) Place value representation.

10^2	10	1
1	3	9
1	7	5
2	10	14
3	1	4