Name: * ANSWER KEY * 1/11/2017

Math 71 Elementary Algebra **Quiz 4**

Calculators are not allowed. Answers may be left as improper fractions, mixed numbers, or decimals. Box your final answers. If you need more space, you may continue your work on the back of the page.

1. Let $a = 2$, $b = -3$, $c = \frac{1}{4}$, $d = -\frac{2}{3}$. Evaluate the following expressions.

   (a) (5 points) $ad - bc$

   $(2)\left(-\frac{2}{3}\right) - (-3)\left(\frac{1}{4}\right) = \left(-\frac{4}{3}\right) - \left(-\frac{3}{4}\right) = -\frac{16}{12} + \frac{9}{12} = \boxed{-\frac{7}{12}}$

   (b) (5 points) $a^3 + 3a^2b + 3ab^2 + b^3$

   $(2)^3 + 3(2)^2(-3) + 3(2)(-3)^2 + (-3)^3$

   $= 8 - 36 + 54 - 27 = \boxed{-1}$

   (c) (5 points) $(a - b)(c - d)$

   $\left((2) - (-3)\right)\left(\frac{1}{4} - \left(-\frac{2}{3}\right)\right) = (5)\left(\frac{3}{12} + \frac{8}{12}\right)$

   $= (5)\left(\frac{11}{12}\right) = \boxed{\frac{55}{12}}$

   (d) (5 points) $b^2 - (a^2 - (b - a))$

   $(-3)^2 - \left((2)^2 - \left((-3) - (2)\right)\right) = 9 - (4 - (-5))$

   $= 9 - 9 = \boxed{0}$

   (e) (5 points) $\sqrt{(a^2 - b^2)^2 - b^2}$

   $\sqrt{\left((2)^2 - (-3)^2\right)^2 - (-3)^2} = \sqrt{(4 - 9)^2 - 9}$

   $= \sqrt{(-5)^2 - 9} = \sqrt{25 - 9} = \sqrt{16} = \boxed{4}$