## Math 105 TOPICS IN MATHEMATICS REGULAR HOMEWORK – IV

February 4 (Wed), 2015

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 $\star$  Due date: Monday, February 9th, 2015.

\* Your paper will be collected in class. No late homework will be accepted. Please see "Rules, Policies and Protocols" p.14 about homework policy.

[I] (9pts) (1)  $3^2 = ?$  (2)  $2^3 = ?$  (3)  $6^2 = ?$ 

[II] (6pts) (1) <u>Substitute</u> x = 5 <u>in</u>  $(x+2)^2$ . Calculate the result.

(2) <u>Substitute</u> x = 2 <u>in</u>  $(x+2)^3$  Calculate the result.

[III] (9pts) Complete the expansion formula for each of (a) and (b) below:

(a)  $\left(x+y\right)^2 = x^2 + \boxed{\phantom{a}} xy + y^2.$ 

(b)  $(x+y)^3 = x^3 + x^2y + xy^2 + y^3$ .

[IV] (6pts) True or false:

If a, b and c satisfy a + b + c = 0, then  $a^3 + b^3 + c^3 = 3abc$ .

(2) Fill in the box:

If a, b, c, p, q and r satisfy p = a + b, q = a + c, r = b + c

then  $p^3 + q^3 + r^3 - 3pqr = 2 \left( \begin{array}{|c|} \\ \\ \\ \\ \end{array} \right).$  (in terms of a,b,c)