# Math 105 TOPICS IN MATHEMATICS <br> REGULAR HOMEWORK - IV 

February 4 (Wed), 2015
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* 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) $\quad 2^{3}=$ ?
(3) $6^{2}=$ ?
[II] (6pts) (1) $\xlongequal{\text { Substitute }} \quad x=5$ in $(x+2)^{2}$. Calculate the result.
(2) $\xlongequal{\text { Substitute }} x=2$ in $(x+2)^{3}$. Calculate the result.
[III] (9pts) Complete the expansion formula for each of (a) and (b) below:
(a) $(x+y)^{2}=x^{2}+\square x y+y^{2}$.
(b) $(x+y)^{3}=x^{3}+\square x^{2} y+\square x y^{2}+y^{3}$.
[IV] (6pts) True or false :
$\xlongequal{\text { If } a, b \text { and } c \text { satisfy }} a+b+c=0$, then $a^{3}+b^{3}+c^{3}=3 a b c$.
(2) Fill in the box:
$\xlongequal{\text { If } a, b, c, p, q \text { and } r \text { satisfy }} \quad p=a+b, q=a+c, r=b+c$,
$\xlongequal{\text { then }} p^{3}+q^{3}+r^{3}-3 p q r=2(\underbrace{\square}_{(\text {in terms of } a, b, c)})$.

