* Division – a shortcut for dividing a by a binomial of

- X cannot be of a degree than .
- of has to be .
- (x-3) means r =
- (x+3) means r =

1. up terms in order of , putting a where there is a power of .
2. Take the of the , and the from (x-r), keeping the .
3. Bring down your coefficient.
4. your 1st coefficient by .
5. Write the from step 4 under the , then
6. the sum, by , write under , and then . these steps until all have been for.
7. The represents the . The other #s are the of the polynomial, which has degree than your polynomial.

* Theorem – the binomial is a of the polynomial if there is when you the into the polynomial.

This will also means that is a / / .

So if you in to your , you will get .

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Synthetic Division LL

Date________________ Period____

Divide.

1) $(3b^3 + 14b^2 + 12b + 16) \div (b + 4)$

2) $(4r^3 + 19r^2 + 20r - 1) \div (r + 3)$

3) $(n^3 - 2n^2 + 4n + 1) \div (n - 1)$

4) $(a^3 - 17a^2 + 71a - 1) \div (a - 10)$

5) $(x^3 - 2x^2 - 8x - 9) \div (x + 1)$

6) $(n^4 + 8n^3 - 7n^2 + 28n + 95) \div (n + 9)$

7) $(m^4 - m^3 - 25m^2 + 32m + 44) \div (m + 5)$

8) $(2x^4 + 14x^3 + 18x^2 - 21x - 9) \div (x + 3)$

9) $(n^4 - 8n^3 + 12n^2 - 10n + 5) \div (n - 1)$

10) $(x^4 - 9x^3 + 10x - 90) \div (x - 9)$

11) $(r^4 - 7r^3 - 19r^2 + 17r - 72) \div (r - 9)$

12) $(n^4 + 9n^3 + 12n^2 - 48n - 40) \div (n + 5)$