Algebra II A
6.4 Synthetic Division Worksheet   Name _____

Directions: Divide the polynomials using <mark>synthetic division</mark>. Make sure that the polynomial is in descending order (standard form). If one of the terms is missing, you must put a placeholder of 0 in its place.

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1. $(x^2 + 5x + 1) \div (x + 3)$

1) _____

Is (x + 3) a factor of the polynomial? Why or why not?

2. $(2x^3 - 11x^2 + 9x - 20) \div (x - 5)$

2) _____

Is (x − 5) a factor of the polynomial? Why or why not?

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3. $(2x^3 + 4x^2 - 3x - 6) \div (x + 3)$

3) _____

Is (x + 3) a factor of the polynomial? Why or why not?

4. $(2x^3 - 11x^2 + 13x - 44) \div (x - 5)$

4) _____

Is (x − 5) a factor of the polynomial? Why or why not?

5. $\left(2x^2+3x-4\right)\div\left(x-2\right)$

5) _____

6. $\left(n^4+5n^3-6n+3\right)\div\left(n+3\right)$

6) _____

Use **SYNTHETIC DIVISION** to divide the following. DON'T FORGET TO PUT PLACEHOLDERS IN FOR #7-8.

7. $\left(x^3-125\right)\div\left(x-5\right)$

7) _____

8. $\left(5x^4+2x^2-15x+10\right)\div\left(x+2\right)$

8) _____