

## Algebra II A

## 6.4 Synthetic Division Worksheet

Name \_\_\_\_\_

**Directions:** Divide the polynomials using **synthetic division**. 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.

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

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1) \_\_\_\_\_

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

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

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2) \_\_\_\_\_

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

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

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3) \_\_\_\_\_

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

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

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4) \_\_\_\_\_

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

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

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5) \_\_\_\_\_

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

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6) \_\_\_\_\_

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

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

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7) \_\_\_\_\_

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

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8) \_\_\_\_\_