

Polynomial Division Name: _____

Divide the polynomials below. You may use long division or synthetic division (when applicable).

***REMEMBER: In order to use synthetic division, you must be dividing by a linear expression (degree of 1) and the leading coefficient must be a 1.

Example: You can use synthetic division when dividing by $x-2$, $x+4$, $n-4$. However, you cannot use synthetic division when dividing by $2x-3$, $4n+2$, $2x^2-3x+4$

EXERCISES

A. Divide, using whichever method you like. Express your answers with a remainder instead of a fraction:

1) $(x^2 + 7x + 12) \div (x + 3)$

3) $(2x^4 + 5x^3 + 5x^2 + 10x + 8) \div (x + 2)$

2) $(x^2 - 4x - 45) \div (x - 9)$

4) $(k^2 + 4k + 8) \div (k + 3)$

Continued on back.....

$$5) (2x^5 + x^4 - 15x^3 - 2x^2 + 10x - 24) \div (x^2 - x - 4)$$

$$10) (x^4 + 4x^2 - 45) \div (x^2 + 9)$$

$$6) (m^2 - 6m + 1) \div (m - 4)$$

$$11) (2x^2 - 5x + 3) \div (2x - 1)$$

$$7) (x^2 - 9) \div (x + 3)$$

$$12) (x^2 + 2 - 5x) \div (x - 3)$$

$$8) (x^2 - 7 + 9x) \div (x - 3)$$

$$13) (5y^2 - 6y + 7) \div (5y - 1)$$

$$9) (x^2 + 4) \div (x + 1)$$

$$14) (6n^2 + 4n + 3) \div (3n - 1)$$

$$15) (3x^4 - 4x^3 + 1) \div (3x^3 - x^2 - x - 1) \quad 19) (x^3 - 4x^2 + x + 6) \div (x - 2)$$

$$16) (x^3 - 4x) \div (x + 2)$$

$$20) (-2x^2 + x^3 - 75) \div (x - 5)$$

$$17) (t^3 + 1) \div (t + 1)$$

$$21) (3h^3 - 4h^2 + 2h + 4) \div (h^2 - 2h + 2)$$

$$18) (f^3 - 8) \div (f - 2)$$

$$22) (3x^6 - 7x^5 - 53x^3 - 26x^2 - 43x - 34) \div (3x + 2)$$