Name_____

3-5 Classwork

Date_____ Period_____

Solve Each Polynomial Equation

1) $x^3 + 5x^2 + 7x + 3 = 0$

2) $x^3 - 3x^2 - x + 3 = 0$

3) $x^3 - 5x^2 + 11x - 15 = 0$

4) $x^3 - 2x - 4 = 0$

5) $x^4 - 5x^3 - x^2 + 5x = 0$

6) $x^3 + 5x^2 - 43x + 57 = 0$

7) $x^3 + x^2 - 38x - 96 = 0$

8) $x^5 - 7x^4 + 6x^3 + 22x^2 - 7x - 15 = 0$

9) The base of a triangle is 4m longer than the height. Find the height if the area of the triangle is $16m^2$.

10) The product of three consecutive integers is 120. Find the three integers.

11) A garden that is 4*m* wide and 6*m* long is to have a uniform path around it such that the area of the path is the same as the area of the garden. Find the width of the path.

12) One leg of a right triangle is 3 feet longer than the other leg. The hypotenuse is 15 feet. Find the area of the triangle.

13) 9. If the polynomial $x^3 - 2x^2 - 11x + 12$ expresses volume in cubic inches of a box. Find the linear expressions that represent the length and height of the box.

Determine whether each of the following statements is always, sometimes, or never true. Explain.

14) A polynomial function wiht real coefficients has real zeros.

15) A polynomial function that does not intercept the *x*-axis has complex (imaginary) roots only.

Who is right?

16) Maurice says: "Every linear function has exactly one zero. It follows the Fundamental Theorem of Algebra." Cheryl disagrees. "What about the linear function $y = 2$?" she asks. "Its graph is a line, but it has no *x*-intercept." Whose reasoning is incorrect? Where is the flaw?