Changing Forms

So far, we've seen polynomials in standard form and factored form. Today we'll explore how to convert from one form to another and why this is helpful.

1. Let $f(x) = (3x + 2)(x^2 + 3x + 4)$.
   a. Use the area model to write f in standard form.

   b. Determine the degree of f.

   c. Find the y −intercept of the graph of f.

2. Let $g(x) = x^3 + 4x^2 + 5x + 2$. Suppose we know that $x + 1$ is a factor of $x^3 + 4x^2 + 5x + 2$. What does this mean?

3. Show how you can find the other factor.

x	x^3		
1			

4. Can you factor any further? If so, write the completely factored polynomial below.

5. Solve $g(x) = 0$. What do these solutions tell you about the graph of g?

6. Use the area model to divide $g(x) = x^3 + 4x^2 + 5x + 2$ by $x + 3$.

7. Is $x + 3$ a factor of the polynomial? How can you tell?

Lesson 2.7 – Factored and Standard Forms of Polynomials

QuickNotes

Check Your Understanding

1. Let $g(x) = (x-2)^2(x+6)(3x-1)$.
   a. Identify the degree of g.

   b. What is the y-intercept of the graph of g?

2. Is $(x+2)$ a factor of (x^3+8x^2-2x+3)? How do you know?

3. Let $g(x) = -x^4+2x^3-13x^2+32x+48$.
   a. Use your graphing calculator to find the real zeros of $g(x)$. State their multiplicity. What do you know about the factors of $g(x)$?

   b. Find the remaining factor and zeros.

   c. Write an expression for $g(x)$ in fully factored form.