

LESSON 2.7 Assignment

Name _____ Date _____

You Can't Spell "Fundamental Theorem of Algebra" without F-U-N!**2****Quadratics and Complex Numbers**

1. The Internet Bargains Company models their profit during different 20-day periods throughout the year. The function $p(x)$ represents the daily profit (in thousands of dollars) on the x th day of each period. When $p(x) > 0$, the company has a daily profit. When $p(x) < 0$, the company has a daily loss.
 - a. The model for one 20-day period is $p(x) = 0.04(x - 10)^2 + 2$. Determine which of the days in the 20-day period the company made a profit without using a calculator. Explain your reasoning.
 - b. The model for one 20-day period is $p(x) = -0.1(x - 3)(x - 15)$. Determine which of the days in the 20-day period the company made a profit without using a calculator. Explain your reasoning.
 - c. The model for one 20-day period is $p(x) = -0.06(x - 9)^2$. Determine which of the days in the 20-day period the company made a profit without using a calculator. Explain your reasoning.
2. Determine the number of roots for each given equation and whether the roots are real or imaginary.
 - a. $0 = 9x^2 - 6x + 1$

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b. $0 = 2x^2 + 9x + 10$

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c. $0 = x^2 - 3x + 5$

3. Write a quadratic equation in standard form with the given roots.

a. Write a quadratic equation with a double root of -5 .

b. Write a quadratic equation with a root of $-3 + 2i$.