Alg 2   Hwk #32   Polynomial Division and Solving   Fall 2019   Name:

Show all work to receive credit. Do work on separate paper.

1. Find each quotient using Polynomial Long Division.

a. $\dfrac{4x^3 + 3x^2 + x + 14}{x + 2}$

b. $\dfrac{3x^3 - 24x^2 + 7x - 56}{x - 8}$

c. $\dfrac{5x^4 + 28x^3 - 5x^2 + 39x - 18}{x + 6}$

2. Find each quotient using Synthetic Division.

a. $\dfrac{2x^3 - 7x^2 - 103x + 44}{x - 9}$

b. $\dfrac{3x^4 + 5x^3 - 29x^2 + x + 20}{x + 4}$

c. $\dfrac{x^3 - 10x^2 - 21x + 294}{x - 7}$

3. Is $x - 3$ a factor of $x^3 + 2x^2 - 22x + 15$. Show your work and explain your answer.

4. Given $x + 8$ is a factor of $x^3 + 4x^2 - 37x - 40$ use polynomial division to find the other two factors.

5. Given $x = 5$ is a zero of $2x^3 - 19x^2 + 27x + 90$ use polynomial division to find the other two zeros.

For the next two questions solve the quadratic using the given method. Your work must show that you used the specified method.

6. Solve by factoring.
(leave answers as fractions)

$63x^2 + 11x - 2 = 0$

7. Solve using the Quadratic Formula.
   Simplify imaginary sol's and round real
   answers to the nearest hundredth.

$4x^2 - 8x + 7 = 0$