Student: Cole Lamers Date: 06/21/19	Instructor: Kelly Galarneau Course: CA&T Internet (70263) Galarneau	Assignment: 3.3 Dividing Polynomials

1.

In the division $\dfrac{x^4 - 2x^3 + 5x^2 - 2x + 1}{x^2 - 2x + 3} = x^2 + 2 + \dfrac{2x - 5}{x^2 - 2x + 3}$, the dividend is _____, the divisor is _____, the quotient is _____, and the remainder is _____.

The dividend is $x^4 - 2x^3 + 5x^2 - 2x + 1$, the divisor is $x^2 - 2x + 3$, the quotient is $x^2 + 2$, and the remainder is $2x - 5$.

2. The remainder theorem states that if a polynomial F(x) is divided by (x − a), then the remainder R = _____.

The remainder theorem states that if a polynomial F(x) is divided by (x − a), then the remainder R = F(a).

3. Divide using synthetic division.

$$\dfrac{2x^3 + 9x^2 - 7x + 3}{x - 3}$$

$\dfrac{2x^3 + 9x^2 - 7x + 3}{x - 3} = 2x^2 + 15x + 38$, remainder 117

4. Use synthetic division to find the quotient and the remainder.

$$\dfrac{x^5 - 32}{x - 2}$$

The quotient is $x^4 + 2x^3 + 4x^2 + 8x + 16$.
(Use integers or fractions for any numbers in the expression. Do not factor.)

The remainder is 0.
(Type an integer or a simplified fraction.)

5. Watch the video and then solve the problem given below.

Click here to watch the video.[1]

Find the remainder when the polynomial $f(x) = 4x^3 - 5x^2 - 7x + 11$ is divided by x + 1.

The remainder is 9.

   1: http://mediaplayer.pearsoncmg.com/assets/CCNgvkaYvOBaeiETWvALmIIkFnltAxKa?clip=2

6. Use the factor theorem to determine whether the first polynomial is a factor of the second polynomial.

$x + 5$; $x^3 + 7x^2 + 2x - 40$

Is x + 5 a factor of $x^3 + 7x^2 + 2x - 40$?

- ✔ Yes
- ○ No

7. Watch the video and then solve the problem given below.

   <u>Click here to watch the video.</u>[2]

   Let $f(x) = 2x^5 + 3x^4 - 6x^3 + x^2 - 8x + 7$. Find $f(-2)$.

   $f(-2) =$ $\boxed{ 59 }$

   2: http://mediaplayer.pearsoncmg.com/assets/CCNgvkaYvOBaeiETWvALmIIkFnltAxKa?clip=3

8. The area of a rectangle is $(4x^4 - 4x^3 + 15x^2 - 3x + 9)$ square centimeters. Its length is $\left(x^2 - x + 3\right)$ cm. Find its width.

   The width of the rectangle is $\boxed{ 4x^2 + 3 }$ cm.