

## Math 3 Advanced

## 2Sem Unit 2 Quiz

1. Use long division to find the remainder of the following expression:

$$\frac{6x^2 + 5x - 7}{2x + 3}$$

2. Use long division to find the remainder of the following expression:

$$\frac{x^3 + 5x^2 + 2x + 6}{x^2 + 1}$$

3. Use synthetic division to find the remainder of the following expression:

$$\frac{x^3 - x^2 - 12x - 9}{x + 4}$$

4. Use synthetic division to find the remainder of the following expression:

$$\frac{x^3 - 4x + 9}{x - 2}$$

5. Find the rational zeros of the following polynomial expression.

$$f(x) = x^3 + 9x^2 + 23x + 15$$

6. Find the rational zeros of the following polynomial expression.

$$f(x) = x^3 - 19x - 30$$

7. Find ALL zeros of the following polynomial expression.

$$f(x) = x^3 + 3x^2 - 5x - 15$$

8. Find ALL zeros of the following polynomial expression.

$$f(x) = x^3 - 5x^2 - 2x + 24$$

9. Find the vertical asymptote(s) of the following rational function:

$$f(x) = \frac{3x - 1}{2x + 5}$$

10. Find the horizontal asymptote of the following rational function:

$$f(x) = \frac{2x + 3}{4 - 5x}$$