

Polynomial Functions Hand In

1.) Divide, using synthetic division

a.) $(x^3 + 3x^2 - x + 2) \div (x + 1)$

b.) $(-2x^5 - 4x^3 - 5x + 1) \div (x - 2)$

2.) Given the polynomial, $p(x) = x^3 + 2x^2 - 5x - 6$, use the remainder & factor theorems to determine whether each of the following is a factor of $f(x)$ or not.

a.) $x + 1$

b.) $x - 3$

3.) Use the remainder theorem to determine the remainder when $x^4 - 9x^3 + 18x^2 - 3$ is divided by $x + 1$.

4.) Factor completely, $p(x) = x^3 - 2x^2 + 3x - 6$.

5a.) State the x - and y - intercepts of the function, $p(x) = x(x - 1)^2(x + 1)$.

b.) Sketch the graph of $p(x)$.

6.) Sketch the graph of the polynomial function, $p(x) = -x^3 + 5x^2 - 7x + 3$

7.) Solve. $x^3 - 2x^2 - 9x + 18 = 0$