



## Examples 3.2 – Polynomial Functions

1. Find  $f'(x)$  if  $f(x) = -3x^7 + 4x^3 - 10x$ .

**Solution:**

2. Suppose the total amount of outstanding mortgage debt in the U.S. for years between 1980 and 2000 can be modeled by  $A(t) = 0.173t^4 - 6.24t^3 + 71.06t^2$  billion dollars  $t$  years after 1980. Find  $A(16)$  and  $A'(16)$ , and interpret the answers.

**Solution:**

3. Investigate the end behavior of the functions from Examples 1 and 2.

**Solution:**

4. Find the  $x$ -intercepts, critical points, and end behavior of  $f(x) = x^5 - 4x^3 - 21x$ .

**Solution:**  $x$ -intercepts:

Critical Points:

End Behavior: