ACMAT161 Summer 2024
Professor Manguba-Glover
Homework 9 Name: _____

Show all work and simplify all answers before circling/boxing them. If you do the problem incorrectly, or don't show sufficient work, you will be asked to rewrite the problem for full credit.

Due next class. Students who turn assignments in late (or do not attempt a problem) forfeit their ability to rewrite those problems for credit.

1. Differentiate $f(x) = \frac{7}{4}x^2 - 3x + 12$
2. Differentiate $f(t) = 2t^3 - 3t^2 - 4t$
3. Differentiate $h(x) = (3x - 1)(x + 2)$
4. Differentiate $y = (2x + 1)^2$
5. Differentiate $h(x) = \frac{\sqrt{x}+x}{x^2}$
6. Differentiate $y = \frac{x^2+4x+3}{x+5}$
7. Find an equation of the tangent line to $y = 2x^3 - x^2 + 2$ at the point $(1, 3)$
8. The equation of the motion of a particle is given by $s(t) = t^3 - 3t$, where s is in meters and t is in seconds. Find:
   (a) The velocity and acceleration functions
   (b) The acceleration after 2 seconds
   (c) The acceleration when the velocity is 0