Name: _____

Date:

Pd: _____

For #'s 1-6, find the given definite or indefinite integral.

1.
$$\int \sqrt[5]{x^3} \ dx =$$

$$2. \int \left(-5t^{-3} - \sin t\right) dt =$$

3.
$$\int \left(\frac{7}{2x^2} + \csc^2 x \right) dx =$$

4.
$$\int \frac{3x^5 + 5x^2 - x}{2\sqrt{x^3}} dx =$$

5.
$$\int_{-1}^{3} (x^2 - 2)^2 dx =$$

6.
$$\int_{1}^{9} \sqrt{x} + \frac{1}{2\sqrt{x}} dx =$$

7.
$$\frac{d}{dx} \int_{0}^{x} (\cos t + t^3) dt =$$

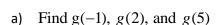
8. Find
$$F'(x)$$
 given $\int_{0}^{3x^2} \frac{1}{t^2} dt$

- 9. Find the average value of $f(x) = x^3 + 1$ over the interval [0, 3].
- 10. Given $f(x) = \frac{9}{x^3}$ on the interval [1, 3], find the value of c guaranteed by the MVT for integrals.
- 11. Solve the differential equation given $f''(x) = x^3$, f'(1) = 6, f(0) = 3.
- 12. The table provides the values of f(x):

х	1	4	7	10	13
f(x)	5	11	20	28	18

- a) Find the Left Riemann sum for the given intervals.
- b) Find the Right Riemann sum for the given intervals.
- c) Find the Trapezoidal Riemann sum for the given intervals.
- d) Find the Midpoint sum with two equal subintervals.
- 13. The graph of a function f consists of a quarter circle and line segments. Let g be the function

given by
$$g(x) = \int_{0}^{x} f(t) dt$$
.



- b) Find g'(3)
- Find all values of x on the open interval (-1, 5) at which g has a relative maximum. Explain your answer.

