MAT 152 QUIZ 1

Name: _____ **Section:** 507 (8:00-8:50) 508 (9:10-10:00) 509 (11:30-12:20)

This quiz has 5 questions of equal value.

1. Find the antiderivative $F(x)$ of $f(x) = 6x^2 + 4x + 1$ which satisfies $F(1) = 10$.

   Answer: _____

2. Evaluate:
$$\int_1^4 5(x-1)^2 dx = \_\_\_\_\_$$

3. Find the indefinite integral:
$$\int \frac{x}{\sqrt{x-1}} dx = \_\_\_\_\_$$

4. Using the left Riemann sum and 3 equal intervals, approximate
$$\int_1^7 f(x)dx,$$
   where $f(x)$ is a function whose values are given in the table below:

x	0	1	2	3	4	5	6	7	8
$f(x)$	-3	0	1	4	5	12	16	20	100

   Answer: _____

5. Compute the following integral:
$$\int_0^{\sqrt{\pi}} 2x \sin\left(x^2 + \frac{\pi}{2}\right) dx = \_\_\_\_\_$$

Homework problem

The following statement is false in general:

$\int_a^b f(x)dx$ is the area bounded by the graph of f, the x axis, and lines $x = a$ and $x = b$.

(a) Provide an example of f, a, b for which the statement above is false.

(b) For a and b fixed, for which functions is the above statement true?