

**Math 173 04,  
the course of Dr. Mihailovs**

**Midterm 3**

**November 20, 1998**

Name \_\_\_\_\_

| Problem | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Extra | Total |
|---------|---|---|---|---|---|---|---|---|---|-------|-------|
| Points  |   |   |   |   |   |   |   |   |   |       |       |

1. Find  $\int_0^3 (2x + 1) dx$  .

2. Find the derivative of the Fresnel function  $C(x) = \int_0^x \cos \frac{\pi t^2}{2} dt$  .

3. Find the area under the graph of  $y = \cos x$  from 0 to  $\pi/2$  .

4. Find  $\int_{-2\pi}^{2\pi} \sin(x^7 + 2x) dx$  .

5. Find  $\int \sqrt[3]{3x + 2} dx$  .

6. Find  $\int \frac{(x-1) dx}{\cos^2(x^2-2x+3)}$ .

7. Find the area of the region bounded by the curves  $y = 12 - x^2$ ,  $y = 2x^2$ .

8. Find the volume of the solid obtained by rotating the region under the graph of  $y = 1/x$  from 1 to 10 about the  $x$ -axis.
9. Find the average value of the function  $f(x) = 3\sqrt{x} + 1/(2\sqrt{x})$  over the interval  $[1, 4]$ .