

Written Homework 11

MATH 2200-98 ILSB Calculus 1

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For problems 1 through 8 use the Fundamental Theorem of Calculus to evaluate the given definite integrals.

1. $\int_{-2}^3 (x^2 - x - 6) dx$

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

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3. $\int_0^{\pi/4} 2 \cos x \, dx$

4. $\int_0^{\ln 8} e^x \, dx$

5. $\int_0^{\pi} (1 - \sin x) \, dx$

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6. $\int_0^4 x(x-2)(x-4) \, dx$

7. $\int_4^9 \frac{x - \sqrt{x}}{x^3} \, dx$

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8. $\int_0^{1/2} \frac{1}{\sqrt{1-x^2}} dx$

9. Find the area of the region above the x -axis bounded by $y = 4 - x^2$.

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10. Given $\int_2^6 f(x) dx = 10$ and $\int_2^6 g(x) dx = 2$, apply properties of integrals to evaluate

(a) $\int_2^6 (3g(x) - f(x)) dx.$

(b) $\int_2^3 (f(x) - g(x)) dx - \int_6^3 (f(x) - g(x)) dx.$