

Math 165 - Homework Assignment 4 Solution

Name: _____

Write your solutions to these problems on **this** paper. Show **all** work to receive full credit for each problem. Give exact answers, not decimal approximations. This assignment is worth 10 points and is due **Friday, March 14** in class.

Evaluate the following indefinite integrals. Don't forget to include a constant of integration! Each problem is worth 1 point.

1. $\int 2x^2 + 4 dx$

Solution: $\frac{2}{3}x^3 + 4x + C$

2. $\int \frac{1}{2}x^7 - \sqrt{x} dx$

Solution: $\frac{1}{16}x^8 - \frac{2}{3}x^{3/2} + C$

3. $\int \sin(t) - 5 \cos(t) + \pi dt$

Solution: $-\cos(t) - 5 \sin(t) + \pi t + C$

4. $\int y^{2/3} + y^{1/3} + \frac{1}{\sqrt{y}} dy$

Solution: $\frac{3}{5}y^{5/3} + \frac{3}{4}y^{4/3} + 2\sqrt{y} + C$

5. $\int \sec^2(2t) dt$

Solution: $\frac{1}{2} \tan(2t) + C$

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6. $\int x\sqrt{x^2+1} dx$

Solution: $\frac{1}{3}(x^2+1)^{3/2} + C$

7. $\int \cos(t) \sin^3(t) dt$

Solution: $\frac{1}{4} \sin^4(t) + C$

8. $\int \frac{x^3}{(x^4+1)^8} dx$

Solution: $-\frac{1}{28(x^4+1)^7} + C$

9. $\int \frac{\sec(\sqrt{y}) \tan(\sqrt{y})}{\sqrt{y}} dy$

Solution: $2 \sec(\sqrt{y}) + C$

10. $\int x \sin(x^2) \sqrt[3]{\cos(x^2)} dx$

Solution: $\frac{3}{8} (\cos(x^2))^{4/3} + C$