

Instructions

This test is closed book. Calculators are not allowed. Work the following problems and write your answers in the space provided. Use the scratch paper provided for your work. You need not simplify your answers. (These are the instructions that appeared on the re-takes. To save space, there are no spaces for answers in this document.)

Re-take 1

1. $\int (x^2 + 4) dx$
2. $\int x\sqrt{x^2 + 4} dx$
3. $\int e^{-3x} dx$
4. $\int_1^e \frac{\ln(x)}{3x} dx$
5. $\int_0^2 \frac{1}{4 + x^2} dx$
6. $\frac{d}{dx} \int_0^{2x} \frac{u}{8 + u^3} du$
7. $\frac{d}{dx} \arctan(1/x)$
8. $\frac{d}{dx} x^2 \ln(x^4)$
9. $\int \sin^5(x) \cos(x) dx$
10. $\int x \sin(x) dx.$

Re-take 2

1. $\int (x + \frac{1}{x}) dx$
2. $\int \frac{x}{\sqrt{4 - x^2}} dx$
3. $\int \cos(5x) dx$
4. $\int_0^{\ln(3)} \frac{1 + e^{2x}}{e^x} dx$
5. $\int_0^{\frac{1}{2}} \frac{2}{1 + 4x^2} dx$

6. $\frac{d}{dx} \int_0^{\sin(x)} \frac{u+1}{u+2u^3} du$
7. $\frac{d}{dx} \arcsin(x^2)$
8. $\frac{d}{dx} x^2 \ln(3x)$
9. $\int_{-1}^7 \sqrt[3]{1+x} dx$
10. $\int x e^{2x} dx.$

Re-take 3

1. $\int \left(x^3 + \frac{2}{x^2} \right) dx$
2. $\int_1^2 x (1+x^2)^4 dx$
3. $\int e^{-4x} dx$
4. $\int \sin(3x) dx$
5. $\int_0^2 \frac{1}{1+x^2} dx$
6. $\frac{d}{dx} \int_0^{x^2} \frac{u}{1+u^3} du$
7. $\frac{d}{dx} \arcsin(2x)$
8. $\frac{d}{dx} (x+1)^2 \ln(5x)$
9. $\int_0^3 \frac{x}{\sqrt{1+x^2}} dx$
10. $\int x \cos(x) dx.$