

Name _____

2023
OSSM Integration Bee
Qualifying Exam

Instructions:

1. You will have 30 minutes to solve as many of these ten integrals as you can.
2. Circle your answer for each integral.
3. Answers to definite integrals should be a number or numerical expression (need not be simplified). Answers to indefinite integrals can be any function which is a valid antiderivative (need not be simplified); the "+C" (plus a constant) is optional.
4. An answer that is a function must be written in terms of the same variable from the original integral!

$$1. \quad \int_0^1 (2-t)\sqrt{t} \, dt$$

$$2. \quad \int_1^9 \frac{1}{\sqrt{x}(1+\sqrt{x})^2} \, dx$$

$$3. \quad \int_{-1}^2 |x-1| \, dx$$

$$4. \quad \int_0^2 \frac{x^2-2}{x+1} \, dx$$

5. $\int \frac{4}{1+9x^2} dx$

6. $\int \frac{1}{\sqrt{-3-4x-x^2}} dx$

7. $\int x e^x dx$

8. $\int \tan(x) [\ln(\cos(x))] dx$

9. $\int \frac{x-3}{x^2+1} dx$

10. $\int \frac{3}{x^2+x-2} dx$