

FOR MATH 222 STUDENTS:

SECTION #: _____

NAME: _____

E-MAIL: _____

CIRCLE ONE:

GRADUATE

UNDERGRADUATE

Integration

Bee

2.00.8

No: calculators, books, notes, headphones,
personal electronic devices, funny T-shirts,
wireless cerebral interfaces; cheating

60 minutes. Circle answers. no partial credit
all problems count equally. start and stop when told

Top 10 scorers advance to finals

Highest performing Math 222 section gets ice cream

$$1. \int x^{2008} dx$$

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

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

$$4. \int \cot x dx$$

$$5. \int (x+4)^5 dx$$

$$6. \int \frac{dx}{x^2+4} dx$$

$$7. \int \ln(x^{12}) dx$$

$$8. \int \frac{3x+2}{3x^2+4x+5} dx$$

$$9. \int \frac{x+2}{3x^2+4x+5} dx$$

$$10. \int x e^x dx$$

$$11. \int \frac{x}{(1+x)^2} e^x dx$$

$$12. \int \cos x e^x dx$$

$$13. \int 1+x(1+x(1+x(1+x))) dx$$

$$14. \int \sin(\cos^{-1}x) dx$$

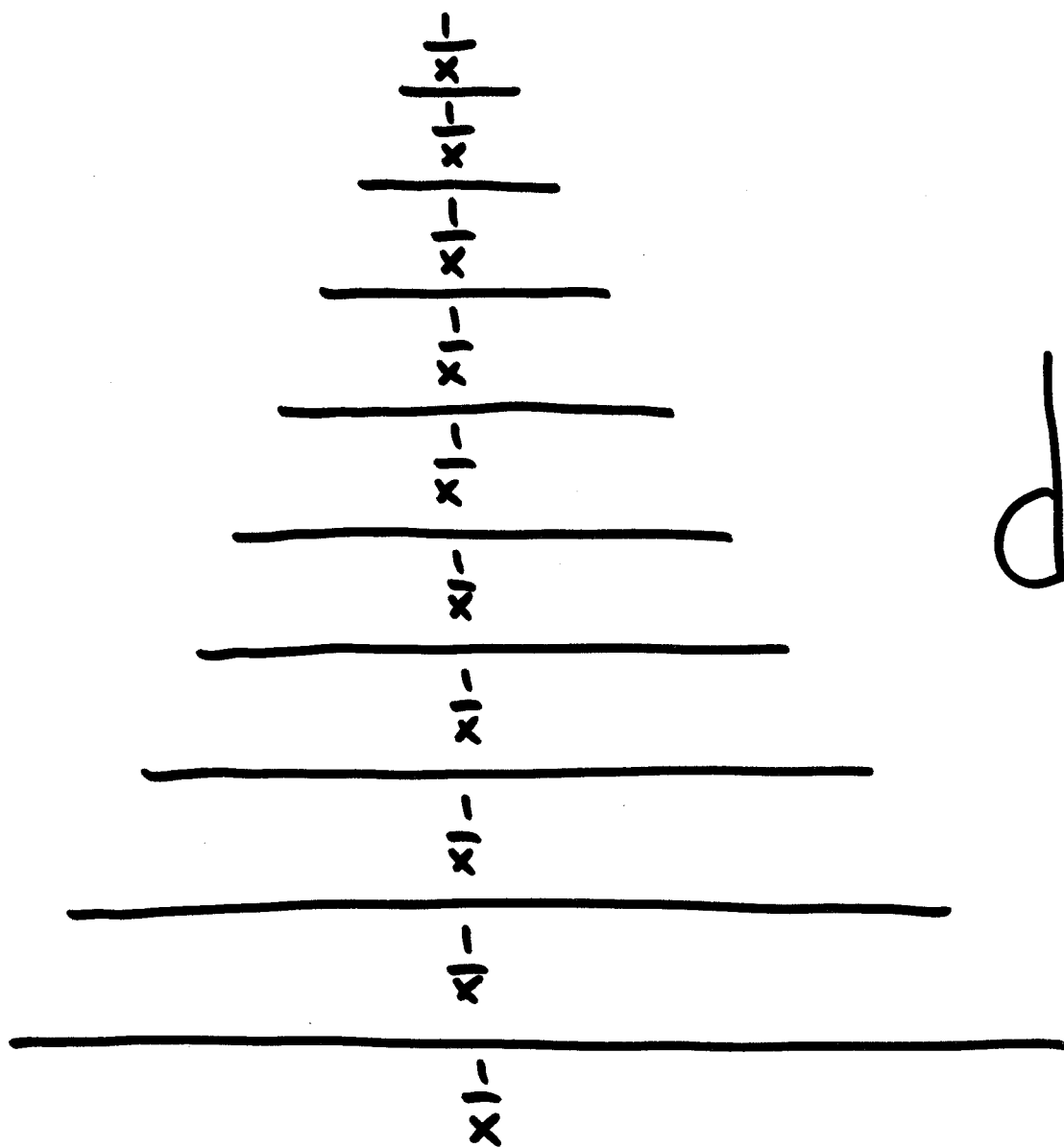
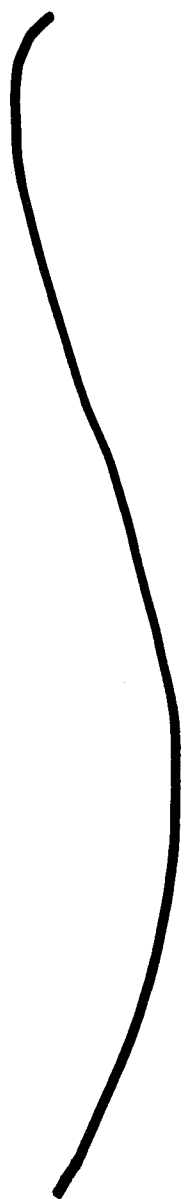
$$15. \int \sin(\cos^{-1}(\sin(\cos^{-1}x))) dx$$

$$16. \int \sqrt{(\sqrt{(\sqrt{(x+1)^2})^2})^2} dx$$

$$17. \int \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1+x}}}} dx$$

$$18. \int \sqrt{\sqrt{\sqrt{x}}} dx$$

19.



dx

20. $\int 1^x dx$

$$21. \int \cos 3x \, dx$$

$$22. \int \sec^3 x \, dx$$

$$23. \int \sin^3 x \, dx$$

$$24. \int \sin^{-1} x \, dx$$

$$25. \int \tan^3 x + \tan^5 x \, dx$$

$$26. \int \frac{\sqrt[3]{\tan^2 x}}{\cos^2 x} \, dx$$

$$27. \int \frac{7}{(7+7x)^{1/7}} dx$$

$$28. \int \frac{\log x}{x} dx$$

$$29. \int \frac{1}{x \log x} dx$$

$$30. \int \frac{1}{x (\log x)^{2008}} dx$$

$$31. \int \sin(\log x) dx$$

$$32. \int \log(x^2 + 2241) dx$$

$$33. \int \frac{x}{\cos^2 x} dx$$

$$34. \int \frac{x}{\sin^2 x} dx$$

$$35. \int x^3 \cos x dx$$

$$36. \int \frac{\tan x}{\sqrt{1 - \frac{\pi}{4} \sin^2 x}} dx$$

$$37. \int \frac{\sin x \cos x}{22 \cos^2 x + 41 \sin^2 x} dx$$

38. WRITE IN YOUR FAVORITE INTEGRAL AND SOLVE IT:

$$39. \int \frac{d\theta}{1+\cos\theta}$$

$$40. \int \frac{1-\cos\theta + \sin\theta}{\sin\theta + 1 + \cos\theta} d\theta$$

$$41. \int e^{\ln(e^x)} dx$$

$$42. \int \ln(e^{\ln(e^{\ln(e^{\ln(e^x)}), 1)})} dx$$

$$43. \int e^{\pi i} di$$

$$44. \int \left(1 + \frac{d}{dx} \left[\sin^{-1}(2x-1) - \sin^{-1}(2\sqrt{x-x^2}) \right] \right)^2 dx$$

$$45. \int \frac{3x^2 + 2}{x^{2/3}} dx$$

$$46. \int \frac{dx}{\sqrt{x-x^2}}$$

$$47. \int \frac{dx}{(1+\sqrt{x})(\sqrt{x-x^2})}$$

$$48. \int \frac{x^{2008}}{\sqrt{1-x^{4018}}} dx$$

$$49. \int \frac{x^2}{1+3x} dx$$

$$50. \int \frac{1}{(1-x)\sqrt{1-x^2}} dx$$