RIDDLE                                    NAME_____
AP CALCULUS
INTEGRATION

**Integrate the following.**

1. $\int \dfrac{x^3 + x}{x} dx$

2. $\int \dfrac{3 + 4x^{\frac{3}{2}}}{\sqrt{x}} dx$

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

4. $\int \dfrac{\cos^3 \theta}{2 - 2\sin^2 \theta} dx$

5. $\int x\sqrt{x+2}\, dx =$

6. $\int \dfrac{1}{\theta^2} \cos \dfrac{1}{\theta} d\theta =$

7. $\int \sin 3x\, dx$

8. $\int x\cos(2x^2)\, dx$

9. $\int \sec 2x \tan 2x\, dx$

10. $\int \left(1 - \cos \dfrac{t}{2}\right)^2 \sin \dfrac{t}{2} dt$

11. $\int \dfrac{dx}{(1-x)^2}$

12. $\int \sec\left(\theta + \dfrac{\pi}{2}\right)\tan\left(\theta + \dfrac{\pi}{2}\right) d\theta$

13. $\int 3(\sin x)^{-2} dx$

14. $\int s^{\frac{1}{3}} \cos\left(s^{\frac{4}{3}} - 8\right) ds$

15. $\int \dfrac{\sin(2t+1)}{\cos^2(2t+1)} dt$

16. $\int \dfrac{x\, dx}{x^2 + 1}$

17. $\int \sec x\, dx$

18. $\int \dfrac{\cos x}{2 + \sin x} dx =$

19. $\int \ln\left(e^{2x-1}\right) dx$

20. $\int \dfrac{x^4 - x^3}{x^2} dx$