

AP Calculus AB
Indefinite Integrals (U-Sub & a couple algebraic techniques)

Name: _____
Block: _____

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

2. $\int \sec^2(2x) dx$

3. $\int \sec^2(3x) e^{\tan(3x)} dx$

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

5. $\int e^x(2+e^x)^{1/2} dx$

6. $\int x^2 \cos(x^3) dx$

7. $\int \frac{\sec^2 x}{\sqrt{\tan x}} dx$

8. $\int \frac{\tan^{-1} x}{1+x^2} dx$

9. $\int \csc^2(3x+5) dx$

10. $\int \frac{x+1}{(x^2+2x+7)^3} dx$

11. $\int \frac{x}{x^2-4} dx$

12. $\int x \tan^2(x^2) dx$

13. $\int \cos(3x) e^{\sin(3x)} dx$

14. $\int \frac{1}{x \ln(3x)} dx$

15. $\int \frac{\sin(3x)}{1+\cos(3x)} dx$

16. $\int \frac{1}{x^2-2x+17} dx$

17. $\int \frac{1}{\sqrt{1-9x^2}} dx$

18. $\int x \csc(3x^2) \cot(3x^2) dx$

19. $\int \frac{1-e^{-x}}{x+e^{-x}} dx$

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

21. $\int \frac{x^5-35x}{x^2+6} dx$

AP Calculus AB
Definite Integrals (U-sub)

Name: _____
Block: _____

$$1. \int_1^{\sqrt{2}} x \cdot 2^{-x^2} dx$$

$$2. \int_0^2 \sqrt{4x+1} dx$$

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

$$4. \int_0^1 \frac{1}{(2x+3)^3} dx$$

$$5. \int_e^{e^2} \frac{1}{x \ln x} dx$$

$$6. \int_2^{e+1} \frac{x}{(x-1)^2} dx$$

$$7. \int_0^{\pi} \sin\left(\frac{x}{2}\right) dx$$

$$8. \int_{-\pi}^{\pi} x \sin(x^2) dx$$

$$9. \int_{-1}^0 \frac{2}{6x-1} dx$$

$$10. \int_1^5 \frac{(\ln x)^{1/2}}{x} dx$$

$$11. \int_0^1 x e^{-x^2} dx$$

$$12. \int_0^2 (2^x + x^2) dx$$