Calculus Name_____ ID: 1

Mixed Review- Indefinite & Definite Integrals (FTC 1 & 2)

Date_____

Evaluate each indefinite integral.

1) $\int -12x^{-5}\,dx$

2) $\int -\frac{12}{x^4}\,dx$

3) $\int 10x^4\,dx$

4) $\int \frac{2(-2x-5)}{x^3}\,dx$

5) $\int \frac{5\sqrt[4]{x}}{4}\,dx$

6) $\int -1\,dx$

7) $\int \left(10x^4 - 3 + 4x^{-3}\right)dx$

8) $\int 3e^x\,dx$

9) $\int \frac{5}{x}\,dx$

10) $\int 4x^{-1}\,dx$

11) $\int -3 \cdot 2^x\,dx$

12) $\int -3\cos x\,dx$

13) $\int -4\sec x\tan x\,dx$

14) $\int 4\csc x\cot x\,dx$

15) $\int -3\csc^2 x\,dx$

16) $\int -\frac{5}{\sin^2 x}\,dx$

Evaluate each definite integral.

17) $\int_{1}^{3} \frac{5}{x^2}\,dx$

18) $\int_{-4}^{-1} \left(-\frac{x^2}{2} - 2x - 1\right) dx$

19) $\int_{-5}^{-2} -\frac{5}{x^3}\,dx$

20) $\int_{-3}^{-2} \frac{1}{x}\,dx$

21) $\int_{\frac{\pi}{2}}^{\pi} \sin x\,dx$

22) $\int_{-\pi}^{\frac{\pi}{6}} \cos x\,dx$

23) $\int_{-3}^{0} -3e^{x}\,dx$

24) $\int_{-1}^{0} e^{x}\,dx$

For each problem, find $F'(x)$.

25) $F(x) = \int_{-\pi}^{x} 2\cos t\,dt$

26) $F(x) = \int_{0}^{x} -\frac{4}{(t+1)^3}\,dt$

27) $F(x) = \int_{x}^{-2} 2t\,dt$

28) $F(x) = \int_{4}^{4x} t^{\frac{1}{2}}\,dt$

29) $F(x) = \int_{x^3}^{0} \left(-t^3 + 4t^2 - 3\right) dt$

30) $F(x) = \int_{-3x}^{2x^2} 3e^{t+2}\,dt$