AD 1. - Antiderivatives - Math 181 - November 28, 2014 Name_____

Find the antiderivatives of the following functions.

1. $f(x) = 15/2\, x^{-1}$
2. $f(x) = 69\, \cos(x)$
3. $f(x) = 38\, \mathrm{e}^{5\,x}$
4. $f(x) = 80\, x^{9}$
5. $f(x) = 89\, \cos(5\, x)$
6. $f(x) = \dfrac{49}{8}\, x^{-1}$
7. $f(x) = 29\, x^{9}$

AD1, Antiderivatives Key

The functions and their antiderivatives.

1. $f(x) = 15/2\, x^{-1}$

$$F(x) = \int f(x)\, dx = \int 15/2\, x^{-1}\, dx = 15/2\, \ln(x) + C$$

2. $f(x) = 69\, \cos(x)$

$$F(x) = \int f(x)\, dx = \int 69\, \cos(x)\, dx = 69\, \sin(x) + C$$

3. $f(x) = 38\, \mathrm{e}^{5\,x}$

$$F(x) = \int f(x)\, dx = \int 38\, \mathrm{e}^{5\,x}\, dx = \frac{38}{5}\, \mathrm{e}^{5\,x} + C$$

4. $f(x) = 80\, x^9$

$$F(x) = \int f(x)\, dx = \int 80\, x^9\, dx = 8\, x^{10} + C$$

5. $f(x) = 89\, \cos(5\, x)$

$$F(x) = \int f(x)\, dx = \int 89\, \cos(5\, x)\, dx = \frac{89}{5}\, \sin(5\, x) + C$$

6. $f(x) = \frac{49}{8}\, x^{-1}$

$$F(x) = \int f(x)\, dx = \int \frac{49}{8}\, x^{-1}\, dx = \frac{49}{8}\, \ln(x) + C$$

7. $f(x) = 29\, x^9$

$$F(x) = \int f(x)\, dx = \int 29\, x^9\, dx = \frac{29}{10}\, x^{10} + C$$