Name: _____
VIP ID: _____

- Write your birthday in the form M/D where M is the month, and D is the day (for example, if your birthday is today, then $M = 3$, $D = 27$)

- I think I forgot two of the integrals in the table below. My bad. Go ahead and fix them (5 points each of them, all or nothing)..

- Choose six of the following 12 integrals. Each of them is worth 5 points (all or nothing).

1. $\displaystyle\int \frac{x}{Mx+D}\,dx$　　　　5. $\displaystyle\int Dx\sqrt{x-M}\,dx$　　　　9. $\displaystyle\int \frac{\ln x}{x^2}\,dx$

2. $\displaystyle\int \frac{Dx}{M^2+x^2}\,dx$　　　　6. $\displaystyle\int Dx\sec^2(Mx)\,dx$　　　　10. $\displaystyle\int \left(\ln x\right)^2 dx$

3. $\displaystyle\int \frac{Mx^2}{D^2+x^2}\,dx$　　　　7. $\displaystyle\int \sqrt{x^2+D^2}\,dx$　　　　11. $\displaystyle\int \tan^2 x\,dx$

4. $\displaystyle\int \sqrt{Dx-M}\,dx$　　　　8. $\displaystyle\int \sqrt{D^2-M^2x^2}\,dx$　　　　12. $\displaystyle\int \cos(Dx)\sin(Mx)\,dx$

Rational Functions	Integrals with roots
$\displaystyle\int x^a\,dx = \frac{x^{a+1}}{a+1}$ (for $a \neq -1$)	$\displaystyle\int \frac{dx}{\sqrt{a^2-x^2}} = \sin^{-1}\left(\frac{x}{a}\right)+C$
$\displaystyle\int \frac{dx}{x} = \ln|x|+C$	
$\displaystyle\int \frac{dx}{x^2+a^2} = \frac{1}{a}\tan^{-1}\left(\frac{x}{a}\right)+C$	
Exponential Functions	**Logarithms**
$\displaystyle\int e^x\,dx = e^x+C$	$\displaystyle\int \ln x\,dx =$
$\displaystyle\int a^x\,dx = \frac{a^x}{\ln a}+C$ (for $a>0$)	$\displaystyle\int \log_a x\,dx =$
Trigonometric Functions	
$\displaystyle\int \sin x\,dx = -\cos x+C$	$\displaystyle\int \cos x\,dx = \sin x+C$
$\displaystyle\int \csc x\,dx = \ln\left|\tan\left(\frac{x}{2}\right)\right|+C$	$\displaystyle\int \sec x\,dx = \ln\left|\sec x+\tan x\right|+C$