The only way to learn mathematics is to do mathematics

1. $\int \cot x \log \sin x \, dx$

2. $\int \operatorname{cosec} x \log(\operatorname{cosec} x - \cot x)\, dx$

3. $\int \frac{\log\left(\tan\frac{x}{2}\right)}{\sin x} dx$

4. $\int \frac{1}{x\sqrt{x^4-1}} dx$

5. $\int \frac{1}{(2x-7)\sqrt{(x-3)(x-4)}} dx$

6. $\int x^{2x}(1+\log x) dx$

7. $\int e^{\cos^2 x} \sin 2x \, dx$

8. $\int \frac{\cos x - \sin x}{1+\sin 2x} dx$

9. $\int \frac{\sin^3 x}{\sqrt{\cos x}} dx$

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

11. $\int \frac{x}{\sqrt{x^2+a^2}+\sqrt{x^2-a^2}} dx$

12. $\int \frac{\cos^3 x}{\sin^2 x + \sin x} dx$

13. $\int \frac{(x+1)e^x}{\sin^2(xe^x)} dx$

14. $\int x^2 e^{x^3} \cos(e^{x^3})\, dx$

ANSWERS-DPP-17

1. $\frac{1}{2}\{\log|\sin x|\}^2 + C$

2. $\frac{1}{2}\{\log|\operatorname{cosec} x - \cot x|\}^2 + C$

3. $\frac{\left(\log\tan\frac{x}{2}\right)^2}{2} + C$

4. $\frac{1}{2}\sec^{-1}(x^2) + C$

5. $\sec^{-1}(2x-7) + C$

6. $\frac{1}{2}x^{2x} + C$

7. $-e^{\cos^2 x} + C$

8. $-\frac{1}{(\sin x + \cos x)} + C$

9. $-2\sqrt{\cos x} + \frac{2}{5}\cos^{5/2} x + C$

10. $\frac{x^3}{3} + \frac{1}{3}(x^2-1)^{3/2} + C$

11. $\frac{1}{6a^2}\{(x^2+a^2)^{3/2} - (x^2-a^2)^{3/2}\} + C$

12. $\log|\sin x| - \sin x + C$

13. $-\cot(xe^x) + C$

14. $\frac{1}{3}\sin(e^{x^3}) + C$