Integrals — Answers:

1. $\int \dfrac{3x}{(1+4x^2)^{10}}\, dx = -\frac{1}{24}(1+4x^2)^{-9} + C$

13. $\int \dfrac{1+e^x}{e^x}\, dx = -e^{-x} + x + C$

2. $\int \dfrac{3x}{1+4x^2}\, dx = \frac{3}{8}\ln|1+4x^2| + C$

14. $\int \dfrac{e^x}{1+e^x}\, dx = \ln|1+e^x| + C$

3. $\int \dfrac{3}{1+4x^2}\, dx = \frac{3}{2}\arctan(2x) + C$

15. $\int \dfrac{e^x}{1+e^{2x}}\, dx = \arctan e^x + C$

4. $\int \dfrac{1}{4+x^2}\, dx = \frac{1}{2}\arctan\frac{x}{2} + C$

16. $\int \dfrac{e^{2x}}{1+e^{2x}}\, dx = \frac{1}{2}\ln|1+e^{2x}| + C$

5. $\int \dfrac{1}{3+x^2}\, dx = \frac{\sqrt{3}}{3}\arctan\frac{x}{\sqrt{3}} + C$

17. $\int \dfrac{e^{2x}}{1+e^{4x}}\, dx = \frac{1}{2}\arctan e^{2x} + C$

6. $\int \dfrac{1}{\sqrt{25-4x^2}}\, dx = \frac{1}{2}\arcsin\left(\frac{2}{5}x\right) + C$

18. $\int \dfrac{\sin x \cos x}{\sqrt{1-\cos^2 x}}\, dx = \sqrt{1-\cos^2 x} + C$

7. $\int \dfrac{x}{\sqrt{25-4x^2}}\, dx = -\frac{1}{4}\sqrt{25-4x^2} + C$

19. $\int \dfrac{\sin x}{\sqrt{1-\cos^2 x}}\, dx = -\arcsin(\cos x) + C$

8. $\int \dfrac{1}{x\sqrt{4x^2-25}}\, dx = \frac{1}{5}\operatorname{arcsec}\left(\frac{2}{5}x\right) + C$

20. $\int \dfrac{\sin x}{\sqrt{1-\cos x}}\, dx = 2\sqrt{1-\cos x} + C$

9. $\int \dfrac{x}{\sqrt{4x^2-25}}\, dx = \frac{1}{4}\sqrt{4x^2-25} + C$

21. $\int \dfrac{\sin x}{\sqrt{1-4\cos^2 x}}\, dx = -\frac{1}{2}\arcsin(2\cos x) + C$

10. $\int \dfrac{e^x}{\sqrt{1+e^x}}\, dx = 2\sqrt{1+e^x} + C$

22. $\int \dfrac{\sin x}{9+\cos^2 x}\, dx = -\frac{1}{3}\arctan\left(\frac{1}{3}\cos x\right) + C$

11. $\int \dfrac{e^x}{\sqrt{1-e^{2x}}}\, dx = \arcsin e^x + C$

23. $\int \dfrac{\sin x \cos x}{1+\cos^4 x}\, dx = -\frac{1}{2}\arctan(\cos^2 x) + C$

12. $\int \dfrac{e^{2x}}{\sqrt{1-e^{2x}}}\, dx = -\sqrt{1-e^{2x}} + C$

24. $\int \dfrac{\sin x \cos^3 x}{1+\cos^4 x}\, dx = -\frac{1}{4}\ln|1+\cos^4 x| + C$