EXTRA HOMEWORK FOR § 5.1

Evaluate the following antiderivatives.

1. $\displaystyle\int \frac{1}{2x-3}\,dx = \boxed{\frac{1}{2}\ln|2x-3|+C}$

2. $\displaystyle\int 4(3^{2x-4})\,dx = \boxed{\frac{2}{\ln(3)}3^{2x-4}+C}$

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

4. $\displaystyle\int e^{3-2x}\,dx = \boxed{-\frac{1}{2}e^{3-2x}+C}$

5. $\displaystyle\int \frac{x^2+3x-4}{x}\,dx = \boxed{\frac{1}{2}x^2+3x-4\ln|x|+C}$

6. $\displaystyle\int \frac{1}{3+x^2}\,dx = \boxed{\frac{\sqrt{3}}{3}\arctan\left(\frac{x}{\sqrt{3}}\right)+C}$

7. $\displaystyle\int \frac{5}{3x+6}\,dx = \boxed{\frac{5}{3}\ln|3x+6|+C}$

8. $\displaystyle\int 6^{4-5x}\,dx = \boxed{-\frac{1}{5\ln(6)}6^{4-5x}+C}$

9. $\displaystyle\int \frac{4}{6+(2x-1)^2}\,dx = \boxed{\frac{\sqrt{6}}{3}\arctan\left(\frac{2x-1}{\sqrt{6}}\right)+C}$

10. $\displaystyle\int \frac{e^{2x}-3e^x+5}{e^x}\,dx = \boxed{e^x-3x-5e^{-x}+C}$

11. $\displaystyle\int \frac{1}{4-5x}\,dx = \boxed{-\frac{1}{5}\ln|4-5x|+C}$

12. $\displaystyle\int \frac{e^{3x-1}+e^{4x+2}}{e^{5-2x}}\,dx = \boxed{\frac{1}{5}e^{5x-6}+\frac{1}{6}e^{6x-3}+C}$

13. $\displaystyle\int \frac{3x^2-2x+5}{4x+3}\,dx = \boxed{\frac{3}{8}x^2-\frac{17}{16}x+\frac{131}{64}\ln|4x+3|+C}$

14. $\displaystyle\int \frac{5}{9x^2+6x+4}\,dx = \boxed{\frac{5\sqrt{3}}{9}\arctan\left(\frac{3x+1}{\sqrt{3}}\right)+C}$