

Math 122
Quiz 3 Review

1. $\int \tanh x \, dx$

2. $\int \frac{\cosh x}{3 \sinh x + 4} \, dx$

3. $\int \operatorname{arctanh} x \, dx$

4. $\int \frac{2-x}{x^2+x} \, dx$

5. $\int \frac{3x+11}{x^2+5x+6} \, dx$

6. $\int \frac{x^3+6x^2+3x+6}{x^3+2x^2} \, dx$

7. $\int \frac{2x^2+5x-1}{x^3+x^2-2x} \, dx$

8. $\int \frac{3x+6}{x^3+2x^2-3x} \, dx$

9. $\int \frac{6x^2-10x+2}{x^3-3x^2+2x} \, dx$

10. $\int \frac{x^2-3}{x^3+x} \, dx$

11. $\int \frac{3x^2-6x+9}{(x^2+9)(x-3)} \, dx$

Answers

1. $\ln \cosh x + C$

2. $\frac{1}{3} \ln |3 \sinh x + 4| + C$

3. $x \operatorname{arctanh} x + \frac{1}{2} \ln |1 - x^2| + C$

4. $2 \ln |x| - 3 \ln |x + 1| + C$

5. $5 \ln |x + 2| - 2 \ln |x + 3| + C$

6. $x - \frac{3}{x} + 4 \ln |x + 2| + C$

7. $\frac{1}{2} \ln |x| + 2 \ln |x - 1| - \frac{1}{2} \ln |x + 2| + C$

8. $-2 \ln |x| + \frac{9}{4} \ln |x - 1| - \frac{1}{4} \ln |x + 3| + C$

9. $\ln |x| + 2 \ln |x - 1| + 3 \ln |x - 2| + C$

10. $-3 \ln |x| + 2 \ln |x^2 + 1| + C$

11. $\ln |x^2 + 9| + \ln |x - 3| + C$