

MATH 253
Handout # 1T

A

1. For $x > 0$ find $\int \sqrt{x} \left(\frac{5}{\sqrt{x}} - \frac{4}{x^{\frac{3}{2}}} \right) dx$.

2. Evaluate $\int_{\frac{\pi}{4}}^{\frac{\pi}{2}} \frac{\cos^3 x}{\sin^3 x} dx$.

3. Find the inverse function f^{-1} and its range and domain if $f(x) = e^{\sqrt{4-x}}$.

B

4. For $x \neq 0$ find $\int \frac{5x - \sqrt[3]{x} + 3}{\sqrt[3]{x}} dx$.

5. Evaluate $\int_0^2 \frac{x^2}{3-x} dx$.

6. Find the inverse function f^{-1} and its range and domain if $f(x) = \ln \frac{1}{1-x}$.

C

7. For $x > 0$ find $\int \left(2\sqrt{x} - \frac{1}{x} \right)^2 dx$.

8. Evaluate $\int_{\frac{1}{2}}^1 \frac{3^{\frac{1}{x}}}{x^2} dx$.

9. Find the inverse function f^{-1} and its range and domain if $f(x) = \frac{1-2x}{x+3}$.

D

10. Find $\int x^{\frac{1}{3}} (2-x) dx$.

11. Evaluate $\int_{-1}^0 x e^{-x^2} dx$.

12. Find the inverse function f^{-1} and its range and domain if $f(x) = -\sqrt{1+x}$.