Math 231 Practice Test 1 A

1 Evaluate $\int \frac{1}{\sqrt{x}(1+\sqrt{x})}dx$

2 Evaluate $\int \frac{1}{(x^2-1)^2}dx$

3 Evaluate $\int \frac{x^3}{\sqrt{x^2+4}}dx$

4 Evaluate $\int t^2 \cos t dx$

5 Does the improper integral $\int_0^4 \frac{1}{x^2-7x+10}dx$ converge or diverge? If it converges, find its value. Justify your answer.

6 If you invest $\$2,000$ at an annual interest rate of 6.5%, find the value of your investment after 8 years when compounded continuously.

Answers to Practice Test B

1 $\arcsin(s^2) + c$
2 39.5190 grams
3 $\frac{-2\sqrt{4-w^2}}{w} + c$
4 $\ln(1 + \frac{\pi}{2})$
5 $\frac{-1}{(s-1)^2} + \frac{1}{s-1} + \arctan(s) + c$
6 $\frac{\pi}{4}$

Math 231 Practice Test 1 B

1 Evaluate $\int \frac{2s}{\sqrt{1-s^4}} ds$

2 If you have 14 grams of ^{14}C today, how much will be left in 100 years if the half life of ^{14}C is 5,730 years.

3 Evaluate $\int \frac{8}{w^2\sqrt{4-w^2}} dw$

4 Does the improper integral $\int_0^\infty \frac{1}{(1+r^2)(1+\arctan r)} dr$ converge or diverge? If it converge, find its value. Justify your answer.

5 Evaluate $\int \frac{2s+2}{(s^2+1)(s-1)^3} ds$

6 Find the area of the region above the x-axis and beloy the curve $y = \frac{1}{x^2-2x+5}$, where $-1 \leq x \leq 3$.

Answers to Practice Test A

1 $2\ln(1+\sqrt{x}) + c$
2 $\frac{1}{4}\ln|\frac{x+1}{x-1}| - \frac{x}{2(x^2-1)} + c$
3 $\frac{1}{3}(x^2+4)^{\frac{3}{2}} - 4\sqrt{x^2+4} + c$
4 $(t^2-2)\sin t + 2t\cos t + c$
5 diverges
6 \$3364.06