MATH 132 **FINAL EXAM** **F14M132.4.1**

This exam should have 20 multiple choice questions, 5 points each. If you don't have a PENCIL to mark your card, please ask to borrow one from your proctor.
Write your ID NUMBER (not your SS number) in the six boxes on the side of your answer card, and then shade in the corresponding numbers. You may bring along a 4x6 card and a calculator of the type you used for the first three exams. The needed data for trigonometric functions and power series is contained on the last 2 pages of the booklet.

1) Evaluate $\int_0^{\frac{\pi}{4}} tan^3(x)\ sec^2(x)\,dx$.
$A)$ 0
$B)$ 0.15
$C)$ 0.25
$D)$ 0.35
$E)$ 0.45
$F)$ 0.55
$G)$ 0.65
$H)$ 0.75
$I)$ 0.85
$J)$ 1

2) Use integration by parts to evaluate $\int_0^1 x\,e^x\,dx$.

$A)$ 0
$B)$ 1
$C)$ -1
$D)$ 2
$E)$ -2
$F)$ e
$G)$ e^2
$H)$ $\frac{e-1}{2}$
$I)$ $\frac{e+1}{2}$
$J)$ $e-1$

3) Use partial fractions to evaluate $\int \frac{3}{x^2+x-2}\,dx.$ $(x > 1)$

A) $arctan(2x+1)+C$
B) $(x^2+x-2)^{-2}+C$
C) $ln(x^2+x)+C$
D) $ln(x-2)+ln(x+2)+C$
E) $ln(\frac{x-1}{x+2})+C$
F) $\frac{ln(x^2)}{ln(x-1)}+C$
G) $ln(\frac{x}{x-1})+C$
H) $ln(\frac{x}{x+2})+C$
I) $\frac{ln(x-1)}{x^2}+C$
J) $\frac{x^2}{ln(x+2)}+C$

4) Find what becomes of the integral $\int \frac{x^2}{\sqrt{9-x^2}}\,dx$, when you make the substitution $x = 3\,sin(\theta)$, $-\frac{\pi}{2} < \theta < \frac{\pi}{2}$.

A) $3\int sin(\theta)\,d\theta$
B) $3\int cos(\theta)\,d\theta$
C) $\int \frac{9}{sin(\theta)}\,d\theta$
D) $\int \frac{9}{cos(\theta)}\,d\theta$
E) $3\int sec^2(\theta)\,d\theta$
F) $3\int csc^2(\theta)\,d\theta$
G) $9\int sin^2(\theta)\,d\theta$
H) $9\int cos^2(\theta)\,d\theta$
I) $\int \sqrt{9-sin^2(\theta)}\,d\theta$
J) $\int \sqrt{9-sin^2(\theta)}\,d\theta$

5) Find the area of the region enclosed by f(x) = $2 - x^2$ *and* g(x) = $2 - 2x$.

$A)$ 1

$B)$ $\frac{1}{2}$

$C)$ $\frac{3}{2}$

$D)$ $\frac{4}{3}$

$E)$ $\frac{7}{5}$

$F)$ $\frac{5}{3}$

$G)$ $\frac{11}{5}$

$H)$ $\frac{9}{2}$

$I)$ $\frac{14}{3}$

$J)$ $\frac{13}{5}$