Math 3110-004: Practice Test one

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Your Name:..............................
Problem 1

Compute the integral

\[ \int \sec^2(x) + \tan(x) \, dx \]
Problem 2

Compute the integral

\[ \int \frac{3t}{t^2 + 1} \, dt \]
Problem 3

Compute the integral

$$\int x \ln(x) dx$$
Problem 4

Compute the integral

\[ \int 4xe^{x^2} \, dx \]
Problem 5

Compute the area under the curve

$$\int xe^x \, dx$$
Problem 6

\[ \int_{0}^{\sqrt{\pi/2}} x \sin(x^2) \, dx \]
Problem 7

\[ \int x \sin(x) \, dx \]
Problem 8

Find two unit vectors parallel to $v = <6, 8>$. 
Problem 9

If the force $F$, has magnitude 100 and is directed $45^\circ$ south east, then $F = ai + bj$. Find $a$ and $b$. 
Problem 10

Find a vector of length 10 in the direction <3, -4>.