Practice exam for test 1

1. $\int 2x(x^2+1)^{28}dx$

   = + C

2. $\int \frac{x^2}{1+x^6}dx$

   = + C

2b. $\int_{-1}^{0} \frac{x^2}{1+x^6}dx$

3. Evaluate the integral

$$\int_0^4 \ln(3x+1)\,dx$$

4. Evaluate the integral

$$\int_0^2 (3x^2 - x + 2)e^{-x}dx$$

5. $\int \frac{x}{\sqrt{x^2-16}}\,dx$

= + C

6. $\int \tan^5 x \sec^4 x\, dx$

= + C

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

$=$ $+ C$

8. $\int \frac{x^2+x-16}{(x-1)(x-3)^2}\,dx$

$=$ $+ C$

8b. $\int_4^5 \frac{x^2+x-16}{(x-1)(x-3)^2}\,dx$

Determine if the following integrals are convergent or divergent. If it converges find the value it converges at.

9. $\int_1^\infty \frac{x}{1+x^2}\,dx$

10. $\int_0^\infty xe^{-x^2}\,dx$