I. EVALUATE EACH INTEGRAL. BE SURE TO SHOW YOUR WORK.

1. $\int \sin^2 x \, dx$

2. omit

3. $\int 4x^2 e^{(2x)} \, dx$

4. $\int \cos^3 x \sin^4 x \, dx$

5. $\int \tan^3 x \sec x \, dx$

6. $\int \frac{x}{2\sqrt{4-x^2}} \, dx$

7. $\int \frac{x^3}{\sqrt{x^2-4}} \, dx$

8. $\int \frac{x-17}{x^2+x-6} \, dx$

9. $\int \frac{4x^2-2x+9}{x^3+3x} \, dx$

10. $\int 2x \ln(x) \, dx$

III. EVALUATE EACH LIMIT.

11. $\lim_{x \to 1+} \frac{1-x+\ln(x)}{x^3-3x+2}$

12. $\lim_{x \to 0} \frac{x^2-x}{\tan(x)}$

IIII. EVALUATE EACH INTEGRAL.

13. $\int_{-1}^{\infty} e^{(-x)} \, dx$

14. $\int_{1}^{2} \frac{1}{(x-2)^2} \, dx$

15. PROVE THE FORMULA FOR THE CIRCUMFERENCE OF A CIRCLE,

$$C = 2\pi r$$

(Perhaps you might also look over the proof of the AREA of a circle…)