CHAPTER 7 INTEGRATION TECHNIQUES

In each problem determine which of the following techniques are useful in evaluating the integral. If a sequence of techniques is required, include the correct order. Then evaluate the integral on a separate sheet of paper. Use proper notation and show all work.

a) U Substitution
b) Partial fractions
c) Integration table

d) Integration by parts
e) Long division
f) No closed form

g) Complete the square
h) Trig substitution

1. $\int \dfrac{1}{\sqrt{x^2 - 5x + 6}} dx$

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

3. $\int \dfrac{1}{x\sqrt{1 + x^2}} dx$

4. $\int \dfrac{x^2}{1 + x^2} dx$

5. $\int \dfrac{1}{1 + x^3} dx$

6. $\int x e^{x^2} dx$

7. $\int x^3 e^{x^2} dx$

8. $\int e^{x^2} dx$