

INTEGRATION TECHNIQUES (practice)

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 each integral.

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

- d) Integration by parts
- e) Long division
- f) Complete the square

- g) Trig substitution
- h) No closed form

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

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

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

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

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

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

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

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