Math 146
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Section 7.6: Integration Using the Table of Integrals

In the back of the book, you will find a **Table of Integrals**. These reference pages contain 120 rules for integration, and often, we need to make a substitution or perform an algebraic manipulation before one of these rules can be applied. Note the various sections in the Table of Integrals as this can often point you in the direction you need to go.

Evaluate the following integrals using the Table of Integrals. Note that you may need to make a substitution or algebraically manipulate the integrand before applying a rule from the Table. In each case, be sure to note the number of the rule you are using.

1. $\int x^3 \cos x dx =$

   Rule #: _____

   $n =$ _____

   $u =$ _____

   $du =$ _____

2. $\displaystyle\int \frac{1}{x^2\sqrt{3+5x^2}}\, dx =$

   $u =$ _____ **Rule #:** _____

   $du =$ _____ $a^2 =$ _____

   $x^2 =$ _____

3. $\int \frac{x}{5x^4 - 3}\, dx =$

$u =$ _____ **Rule #:** _____

$du =$ _____ $a^2 =$ _____

4. $\int x^3\sqrt{2 + x}\, dx =$

Rule #: _____

$n =$ _____

$a =$ _____

$b =$ _____

Rule #: _____

$n =$ _____

$a =$ _____

$b =$ _____

5. $\int x\sqrt{x^2+2x+4}\,dx =$

$x^2+2x+4 = (\_\_\_\_\_) - \_\_\_ + \_\_\_$

$= (\_\_\_\_\_)^2 + \_\_\_$

$u = \_\_\_\_\_$ **Rule #:** _____

$du = \_\_\_\_\_$ $a^2 = \_\_\_\_\_$

$x = \_\_\_\_\_$