

Integration by Substitution : I

1) $\int 3x^2(x^3+1) dx$ use $u = x^3+1$

2) $\int 3x^2(x^3-4) dx$ use $u = x^3-4$

3) $\int x^2(x^3+7) dx$ use $u = x^3+7$

4) $\int 2x(x^2-3) dx$ use $u = x^2-3$

5) $\int 12x^2(x^3+2)^4 dx$ use $u = x^3+2$

6) $\int x^3(x^4-7)^5 dx$ use $u = x^4-7$

For the following choose your own substitution

7) $\int 2x^4(x^5+8)^3 dx$

8) $\int 3x^5(2x^6+7)^4 dx$

9) $\int 5x^6(1-2x^7)^3 dx$

10) $\int (x^2-2x)\left(\frac{x^3}{3}-x^2\right)^4 dx$

11) $\int \frac{3x^2}{(x^3-1)^4} dx$

12) $\int \frac{x^3}{(x^4+3)^3} dx$

13) $\int 3x^2\sqrt{x^3+1} dx$

$$14) \int 3x \sqrt{x^2+7} \, dx$$

$$15) \int \frac{x^2}{\sqrt{x^3+2}} \, dx$$

$$16) \int 2x^4 \sqrt{x^5-1} \, dx$$

$$17) \int x^3 \sqrt[3]{x^4+7} \, dx$$

$$18) \int \frac{3x^2}{\sqrt[3]{x^3-2}} \, dx$$

$$19) \int \frac{2x}{\sqrt{x^2+9}} \, dx$$

$$20) \int (3x^2+2x-1)(x^3+x^2-x)^7 \, dx$$