

1.  $\int x(2x + 6)^{10} dx$

2.  $\int 4x(3x^2 + 1)^5 dx$

3.  $\int \tan^3 x dx$

4.  $\int \sin^3 x \cos^2 x dx$

5.  $\int 2x \cos(3x + 1) \, dx$

6.  $\int \sqrt{1 - x^2} \, dx$

7.  $\int \frac{\sin 2\theta}{\sin \theta - \sin^3 \theta} \, d\theta$

$$1. \frac{(2x+6)^1 2}{48} - \frac{3(2x+6)^4}{22} + c$$

$$2. \frac{(3x^2+1)^6}{9} + c$$

$$3. \frac{\tan^2 x}{2} + \ln |\cos x| + c$$

$$\text{or } \frac{\sec^2 x}{2} + \ln |\cos x| + c$$

$$4. \frac{-\cos^3 x}{3} + \frac{\cos^5 x}{5} + c$$

$$5. \frac{2x \sin(3x+1)}{+} \frac{3 \cos(3x+1)}{9} + c$$

$$6. \frac{x\sqrt{1-x^2}}{2} + \frac{\sin^{-1}(x)}{2} + c$$

$$7. 2 \ln |\sec \theta + \tan \theta| + c$$