

$$1. \int \frac{1}{1+x^2} dx = \arctan(x) + C$$

$$2. \int \frac{1}{5+x^2} dx = \frac{1}{\sqrt{5}} \arctan\left(\frac{x}{\sqrt{5}}\right) + C$$

$$3. \int \frac{1}{1+5x^2} dx = \frac{1}{\sqrt{5}} \arctan(\sqrt{5} x) + C$$

$$4. \int \frac{5}{1+x^2} dx = 5 \arctan(x) + C$$

$$5. \int \frac{5}{1-x^2} dx = \text{??????}$$

$$6. \int \frac{5}{7+3x^2} dx = \frac{5}{\sqrt{21}} \arctan\left(\left(\sqrt{\frac{3}{7}}\right)x\right) + C$$

$$7. \int \frac{x}{1+5x^2} dx = \frac{1}{10} \ln(|1+5x^2|) + C$$

$$8. \int \frac{x}{5+x^2} dx = \frac{1}{2} \ln(|5+x^2|) + C$$

$$9. \int \frac{x}{5-x^2} dx = -\frac{1}{2} \ln(|5-x^2|) + C$$

$$10. \int \frac{7-13x}{5+x^2} dx = \frac{7}{\sqrt{5}} \arctan\left(\frac{x}{\sqrt{5}}\right) - \frac{13}{2} \ln(|5+x^2|) + C$$

$$11. \int \frac{x}{\sqrt{1-x^2}} dx = -(1-x^2)^{1/2} + C = -\sqrt{1-x^2} + C$$

$$12. \int \frac{1}{\sqrt{1-x^2}} dx = \arcsin(x) + C$$

$$13. \int \frac{1}{\sqrt{5-x^2}} dx = \arcsin\left(\frac{x}{\sqrt{5}}\right) + C$$

$$14. \int \frac{1}{\sqrt{5+x^2}} dx = \text{????????}$$

$$15. \int \frac{x}{\sqrt{5+x^2}} dx = (5+x^2)^{1/2} + C = \sqrt{5+x^2} + C$$