

$$5. \int e^{5x} dx = \frac{1}{5} \int 5 e^{5x} dx = \boxed{\frac{1}{5} e^{5x} + C}$$

$$6. \int \frac{1}{3x+5} dx = \frac{1}{3} \int \frac{3}{3x+5} dx = \boxed{\frac{1}{3} \ln|3x+5| + C}$$

$$7. \int [(x-1)^5 + 3(x-1)^2 + 5] dx = \int (x-1)^5 dx + 3 \int (x-1)^2 dx + 5 \int dx$$

$$= \boxed{\frac{(x-1)^6}{6} + 3 \cdot \frac{(x-1)^3}{3} + 5x + C}$$

$$8. \int 2x \cdot e^{x^2-1} dx = \boxed{e^{x^2-1} + C}$$

$$9. \int 3t \sqrt{t^2+9} dt = 3 \int t(t^2+9)^{1/2} dt$$

$$= 3 \cdot \frac{1}{2} \int 2t \cdot (t^2+9)^{1/2} dt$$

$$= \frac{3}{2} \frac{(t^2+9)^{3/2}}{\frac{3}{2}} = (t^2+9)^{3/2} + C$$

$$10. \int x^5 \cdot e^{1-x^6} dx = \left(\frac{-1}{6}\right) \int (-6)x^5 \cdot e^{1-x^6} dx$$

$$= \boxed{\left(-\frac{1}{6}\right) e^{1-x^6} + C}$$