1) $$\int (x+2)^3 \cdot 1 \cdot dx = \int (x+2)^3 \cdot \underbrace{(x+2)'}\cdot dx$$

$$= \frac{1}{3+1}(x+2)^{3+1} + C = \frac{1}{4}(x+2)^4 + C$$

2) $$\int (3x-1)^2 dx = \int (3x-1)^2 \cdot 3 \cdot \frac{1}{3} dx$$

$$= \frac{1}{3}\int (3x-1)^2 \cdot \underbrace{(3x-1)'}\cdot dx = \frac{1}{3}\cdot\frac{1}{2+1}\cdot(3x-1)^{2+1} + C$$

$$= \frac{1}{3}\cdot\frac{1}{3}\cdot(3x-1)^3 + C = \frac{1}{9}\cdot(3x-1)^3 + C$$

3) $$\int (7x-2)^5 dx = \int (7x-2)^5 \cdot 7 \cdot \frac{1}{7} dx =$$

$$\frac{1}{7}\int (7x-2)^5 \cdot \underbrace{(7x-2)'}\cdot dx = \frac{1}{7}\cdot\frac{1}{5+1}\cdot(7x-2)^{5+1} + C$$

$$= \frac{1}{42} \cdot (7x-2)^6 + C$$

4) $$\int (2x+1)^{\frac{1}{2}} \cdot 2 \cdot \frac{1}{2}\, dx =$$

$$\frac{1}{2} \int (2x+1)^{\frac{1}{2}} \cdot (2x+1)' \cdot dx =$$

$$\frac{1}{2} \cdot \frac{1}{\frac{1}{2}+1} \cdot (2x+1)^{\frac{1}{2}+1} + C =$$

$$\frac{1}{2} \cdot \frac{1}{\frac{3}{2}} \cdot (2x+1)^{\frac{3}{2}} + C = \frac{1}{2} \cdot \frac{2}{3} \cdot (2x+1)^{\frac{3}{2}} + C$$

$$= \frac{1}{3} (2x+1)^{\frac{3}{2}} + C = \frac{1}{3} \sqrt{(2x+1)^3} + C$$

5) $$\int \cos(3x+\pi) \cdot 3 \cdot \frac{1}{3}\, dx = \frac{1}{3} \int \cos(3x+\pi) \cdot \underbrace{(3x+\pi)'}\, dx$$

$$= \frac{1}{3} \sin(3x+\pi) + C$$

6) $$\int \sin^2 x \cdot \cos x \, dx = \int \sin^2 x \cdot (\sin x)' dx$$

$$= \int (\sin x)^2 \cdot (\sin x)' \cdot dx$$

$$= \frac{1}{3} (\sin x)^3 + C = \frac{1}{3} \sin^3 x + C$$

7) $$\int (3x^2+1)^4 \cdot 6x \cdot \frac{1}{6} \, dx =$$

$$\frac{1}{6} \int (3x^2+1)^4 \cdot (3x^2+1)' \cdot dx =$$

$$\frac{1}{6} \cdot \frac{1}{4+1} \cdot (3x^2+1)^{4+1} + C = \frac{1}{30} \cdot (3x^2+1)^5 + C$$

8) $\int (3x^2+x)^{-3} \cdot (6x+1)\, dx =$

$\int (3x^2+x)^{-3} \cdot \underbrace{(3x^2+x)'}\, dx =$

$\frac{1}{-3+1} \cdot (3x^2+x)^{-3+1} + C = -\frac{1}{2} \cdot (3x^2+x)^{-2} + C$

9) $\int \frac{1}{(x^2+2x)^4} \cdot (x+1)\, dx =$

$\int \frac{1}{(x^2+2x)^4} \cdot \frac{2 \cdot (x+1)}{2}\, dx =$

$\int \frac{1}{(x^2+2x)^4} \cdot (2x+2) \cdot \frac{1}{2}\, dx =$

$$\frac{1}{2}\int \frac{1}{(x^2+2x)^4}\cdot(2x+2)\,dx =$$

$$\frac{1}{2}\int \frac{1}{(x^2+2x)^4}\cdot(x^2+2x)'\,dx =$$

$$\frac{1}{2}\int (x^2+2x)^{-4}\,\underbrace{(x^2+2x)}\,'\,dx =$$

$$\frac{1}{2}\cdot\frac{1}{-4+1}\cdot(x^2+2x)^{-4+1}+C =$$

$$-\frac{1}{6}\cdot(x^2+2x)^{-3}+C = -\frac{1}{6(x^2+2x)^3}+C$$

10) $$\int (x^3+1)^{-\frac{1}{2}}\cdot x^2\,dx = \frac{1}{3}\int (x^3+1)^{-\frac{1}{2}}\cdot 3x^2\,dx$$

$$= \frac{1}{3}\int (x^3+1)^{-\frac{1}{2}} \cdot (x^3+1)' \, dx$$

$$= \frac{1}{3} \frac{1}{-\frac{1}{2}+1} \cdot (x^3+1)^{-\frac{1}{2}+1} + C$$

$$= \frac{1}{3} \cdot \frac{1}{\frac{1}{2}} \cdot (x^3+1)^{\frac{1}{2}} + C$$

$$= \frac{2}{3}\sqrt{x^3+1} + C$$