$$f(x) = (3x^4 - 2)^5 \qquad f'(x) = 5(3x^4 - 2)^4 (12x^3)$$
$$= 60x^3 (3x^4 - 2)^4$$

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(26) $\displaystyle\int (x^3 - 2)^6 \, \underbrace{3x^2 dx} = \int u^6 \, du = \dfrac{u^7}{7} + c$

$u = \boxed{x^3 - 2}$

$u' = 3x^2$

$\dfrac{du}{dx} = 3x^2 \Rightarrow du = 3x^2 dx$

$$= \dfrac{(x^3 - 2)^7}{7} + c$$

or $\boxed{\dfrac{1}{7}(x^3 - 2)^7 + c}$

$$\left[\dfrac{1}{7}(x^3 - 2)^7 + c\right]' = \dfrac{1}{7} \cdot 7 (x^3 - 2)^6 (3x^2)$$

(28) $\displaystyle\int (1 - 2x)^{1/3} \underbrace{(-2)dx} = \int u^{1/3} \, du = \dfrac{u^{4/3}}{4/3} + c = \dfrac{3}{4} u^{4/3} + c$

$u = 1 - 2x$

$du = -2 dx$

$$= \boxed{\dfrac{3}{4}(1 - 2x)^{4/3} + c}$$

$$\left[\dfrac{3}{4}(1 - 2x)^{4/3} + c\right]' = \dfrac{3}{4} \cdot \dfrac{4}{3} (1 - 2x)^{1/3}(-2)$$

(30) $\displaystyle\int 6x^2 (1 - x^3)^{4/3} \, dx = 6 \int (1 - x^3)^{4/3} \boxed{\dfrac{-3}{-3}} x^2 dx$

$u = 1 - x^3$

$du = -3x^2 dx$

$$= 6\left(-\dfrac{1}{3}\right)\int (1 - x^3)^{4/3} \underbrace{(-3x^2)dx}_{du} = -2\int u^{4/3} \, du$$

$$= -2 \dfrac{u^{7/3}}{7/3} + c = -2\left(\dfrac{3}{7}\right) u^{7/3} + c$$

check:

$\left[-\dfrac{6}{7} \cdot \dfrac{7}{3}(1 - x^3)^{4/3}(-3x^2)\right]$

$$= \boxed{-\dfrac{6}{7}(1 - x^3)^{7/3} + c}$$

$\frac{1}{8}\int (3+4x^2)^5 \underline{(8)x\,dx} = \frac{1}{8}\int u^5\,du = \frac{1}{8}\frac{u^6}{6}+c = \frac{1}{48}u^6+c$

$\underbrace{}_{du}$

$u = 3+4x^2$

$du = 8x\,dx$

$$\boxed{=\frac{1}{48}(3+4x^2)^6 + c}$$

㉞ $\int \frac{2x^2\,dx}{\sqrt{2x^3+1}} = \frac{1}{3}\int (2x^3+1)^{-1/2}\,\underline{3\cdot 2x^2\,dx} = \frac{1}{3}\int u^{-1/2}\,du$

$ = \frac{1}{3}\frac{u^{-1/2+1}}{-\frac{1}{2}+1}+c = \frac{1}{3}\frac{u^{1/2}}{1/2}+C$

$u = 2x^3+1$

$du = 6x^2\,dx$

$3\cdot 2x^2\,dx$

$ = \frac{2}{3}u^{1/2}+c$

$ = \frac{2}{3}(2x^3+1)^{1/2}+c \quad or \quad \boxed{\frac{2}{3}\sqrt{2x^3+1}+c}$

㊳ $\frac{dy}{dx} = 8x+1 \qquad\qquad$ Curve passes through $(-1,4)$

$dy = (8x+1)\,dx$

$\int dy = \int (8x+1)\,dx \quad\Rightarrow\quad y = 8\frac{x^2}{2}+x+c$

$ y = 4x^2+x+c$

 Let $x=-1$: $\;4 = 4(-1)^2+(-1)+c$

$y=4$ $\qquad 4 = 4-1+c$

$ 4 = 3+c$

$ c = 1$

$$\boxed{y = 4x^2+x+1}$$

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