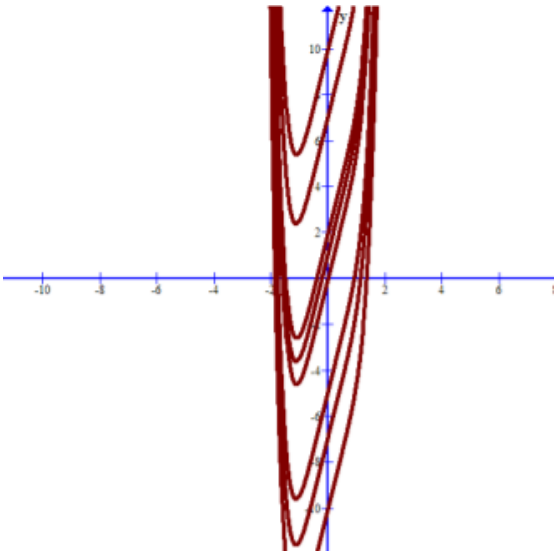
$$f'(x) = 3x^5 + 5$$

$$f(x) = \int f'(x)\,dx$$

$$f(x) = \int 3x^5 + 5\,dx$$

$$f(x) = \frac{3x^6}{6} +$$

$$\boxed{f(x) = \frac{x^6}{2} + 5x + C}$$



$$f\left(-\tfrac{1}{5}\right) = 1$$

$$1 = \tfrac{1}{2}\left(-\tfrac{1}{5}\right)^6 + 5\left(-\tfrac{1}{5}\right) + C$$

$$1 = \frac{1}{31250} - 1 + C$$

$$1 = -0.999968 + C$$

$$1.999968 = C$$

$$\boxed{f(x) = \tfrac{1}{2}x^6 + 5x + 1.999968}$$

$\int f''(x)\,dx = f'(x)$

$\int f'(x)\,dx = f(x)$

$\int f''(x) = \int 2\,dx$

$f'(2) = 5$

$f(2) = 10$

$\Rightarrow \int f'(x) = \int 2x + c\,dx$

$f(x) = x^2 + cx + b$

$5 = 2(2) + c$

$5 = 4 + c$

$c = 1$

$10 = 2^2 + 2 + b$

$10 = 6 + b$

$b = 4$

$f(x) = x^2 + x + 4$

$f''(x) = 3x$

$f'(4) = 40$

$f(2) = 0$

$f'(x) = \frac{3}{2}x^2 + C$

$40 = \frac{3}{2}(4)^2 + C$

$40 = 24 + C$

$C = 16$

$\int f'(x) = \int \frac{3}{2}x^2 + 16\,dx$

$f(x) = \frac{1}{2}x^3 + 16x + C$

$0 = \frac{1}{2}(2)^3 + 16 \cdot 2 + C$

$0 = 4 + 32 + C$

$C = 36$

$f(x) = \frac{1}{2}x^3 + 16x + 36$