M1B/Schoenbrun Section 5.2: Fundamental Theorem of Calculus

Compute these integrals EXACTLY, check with your calculator

1) $\int_0^1 \left(2x - 6x^4 + 5\right) dx =$

2) $\int_{-1}^1 \left(x-1\right)\left(x+2\right) dx =$

3) $\int_1^2 \frac{dt}{t^2} =$

4) $\int_1^2 \sqrt{x}\, dx =$

5) $\int_{-1}^{1} x\left(x^2-1\right)^4 dx =$

6) **(HARD)**

$\int_{0}^{1} 20x^2\left(x^3-1\right)^{1/3} dx =$

(hint), what is $\frac{d}{dx}\left(x^3-1\right)^{4/3}$=?