Find the average value over the given interval.

1. $f(x) = 1;$ $[0, 3]$
2. $f(x) = x^2;$ $[-1, 1]$
3. $f(x) = xe^x;$ $[0, 1]$
4. $f(x) = x^3;$ $[-1, 1]$

Evaluate the following integrals.

1. $\int \dfrac{dx}{1 - x^2}$

2. $\int \dfrac{dr}{r^2 + 2r - 3}$

3. $\int \dfrac{x + 5}{x^2 + x - 2} \, dx$

4. $\int \dfrac{x^2 - 2}{x(x - 1)(x + 2)} \, dx$

5. $\int \dfrac{x^2 + 2x - 1}{2x^3 + 3x^2 - 2x} \, dx$