

Worksheet #5

1) Find the following antiderivatives

$$a) \int \frac{x^2 + 2x + 5}{x-2} dx$$

$$b) \int \frac{e^x}{e^x - e^{-x}} dx$$

$$c) \int e^{e^{e^x}} \cdot e^{e^x} \cdot e^x dx$$

2) Solve the definite integrals

$$a) \int_{-2}^{-1} e^{t^2+2t} \cdot (t+1) dt$$

$$b) \int_1^4 \frac{x^2+3x}{\sqrt{x}} dx$$

3) Find the particular antiderivatives

$$a) f'(x) = x^2 - \frac{1}{x^2}, \quad f(1) = \frac{4}{3}$$

$$b) g'(x) = 2^{x^3} \cdot x^2, \quad g(1) = \frac{8}{\ln(2)}$$

$$c) h'(x) = \frac{x-2}{e^{4x-x^2}}, \quad h(0) = -5$$

4) Find the area between the function and the x -axis from $x=2$ to $x=3$

$$a) f(x) = -x^2 + 2x + 1$$

$$b) g(x) = x + \frac{4}{\sqrt{x}}$$