1. Express

$$\log_3 \frac{18x\sqrt{y}}{z^3}$$

   as a sum, difference or multiple of logarithms.

2. Solve for y in terms of x:
$$3\log_4 y - 2\log_4(x+2) = 16\,.$$

3. Solve the following equation:

$$e^{x^2 - \sin x^3 + 5} = -9\,.$$

4. Solve

$$2^x = 3^{x-1}.$$

5. Solve the equation:

$$e^x - 8e^{-x} = 2.$$

6. Solve:

$$\log_2 x + \log_2(x + 2) = 3.$$