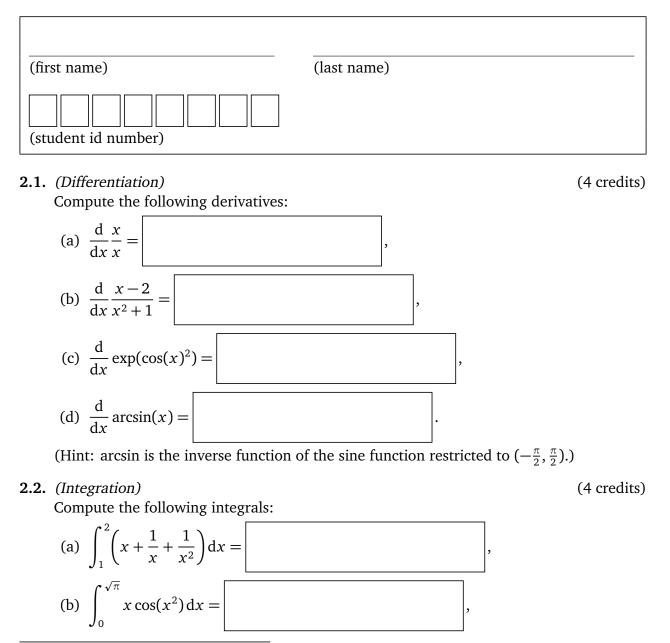


2. exercise sheet for Engineering Mathematics



Please submit your solutions digitally at the corresponding TeachCenter course. The deadline is 18.10.2022, 23:55 o'clock. https://tc.tugraz.at/main/course/view.php?id=4636 https://www.math.tugraz.at/~mtechnau/teaching/2022-w-engimaths.html

(c)
$$\int_0^5 x^2 \exp(x) dx =$$
 .

(Please give *exact* values, and not approximations. For instance, do *not* write 0.6931 for log(2).)

Hint: All of the above exercises can be solved using the fundamental theorem of calculus. For (c) one would usually use a trick called "integration by parts". If you do not know this trick, try to find $A, B, C \in \mathbb{R}$ such that $\frac{d}{dx}((A+Bx+Cx^2)\exp(x)) = x^2\exp(x)$ and then apply the fundamental theorem.