1. Write down your name and email address.
2. Find all x fulfilling $3x + 7 = 20$. (linear equation)
3. Find all x fulfilling $x^2 + 5x + 4 = 0$. (quadratic equation)
4. Simplify $\left(\frac{5}{6} - \frac{3}{10}\right) : \frac{4}{15}$. (fractions)
5. Find all $x, y \in \mathbb{R}$ which fulfills (linear systems)

$$\begin{aligned} 2x + 3y &= -1 \\ 3x - 4y &= -10. \end{aligned}$$

6. Determine the value of $a,\ b \in \mathbb{R}$ in such a way that a function $f(x) = ax + b$ fulfills $f(1) = 3$ and $f(4) = 2$. (linear functions)
7. Find a vertex of parabola $f(x) = x^2 + 4x - 2$. (quadratic functions)
8. Find both solutions (in $\mathbb{C}$) of $x^2 + 6x + 10 = 0$. (quadratic equations in complex plane)
9. Solve $2x + 5 \geq 3x - 2$ in $\mathbb{R}$. (linear inequalities)
10. For which x is a function $f(x) = x^2 + 6x + 8$ negative? (quadratic inequalities)
11. Solve $\frac{x+1}{x-2} \leq \frac{2x+3}{x-2}$ in $\mathbb{R}$. (nonlinear inequalities)
12. Find $x \in \mathbb{R}$ such that $4^x = \frac{1}{2}$. (exponential equations)
13. Find $a \in \mathbb{R}$ such that $\log_4 a = \frac{3}{2}$. (logarithmic equations)
14. Find all solutions to $x^3 + 5x^2 - 2x - 24 = 0$. (cubic equation)
15. Compute $\sum_{i=1}^{3} \left(\sum_{j=1}^{i} \frac{ij}{5} \right)$. (sums)
16. Classify the conic section $\{(x, y) \in \mathbb{R}^2, x^2 + 2x + y^2 + 4y = 4\}$, determine its center. (conic section)
17. Sketch the conic section $\{(x, y) \in \mathbb{R}^2, x^2 - y^2 = c\}$ for $c = -1$, $c = 1$, $c = 0$. (conic section)