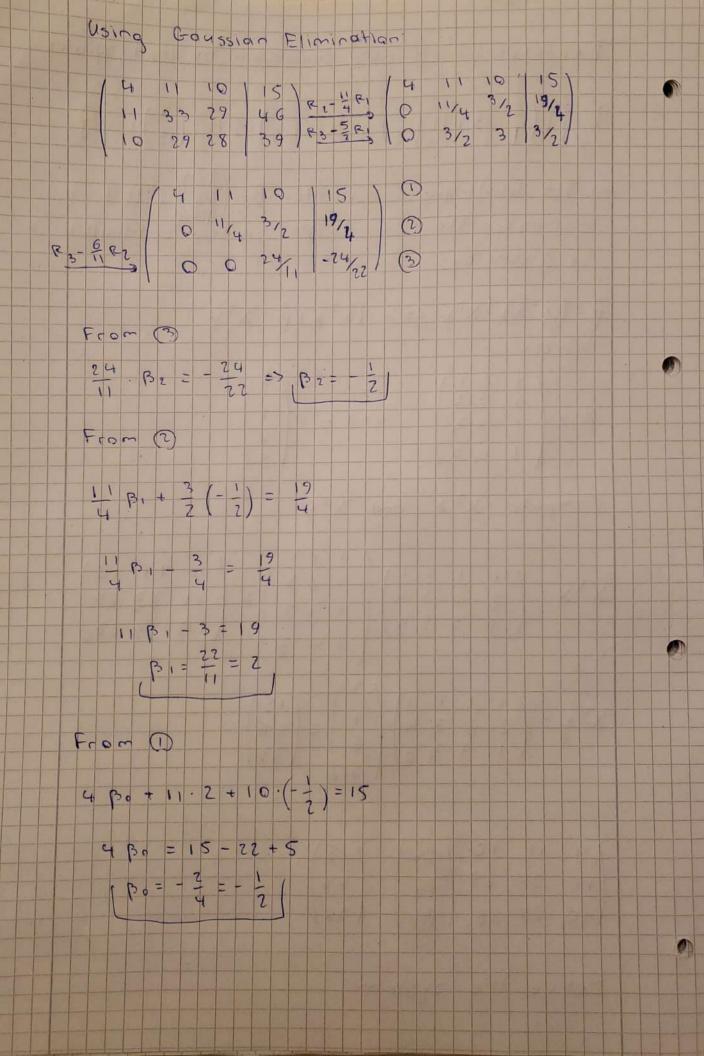
Exercise 2 - Linear regression by least squares 6 $T = \{(\binom{2}{1}, 3), (\binom{2}{3}, 1), (\binom{3}{3}, 6), (\binom{4}{3}, 5)\}$ a) The least squares estimator B = (B) (Hat minimizes the sum of the squared residuals) is direct ph: B= (XTX) XTY <=> (XTX) B= XTY nhece 6 $X = \begin{pmatrix} 1 & 2 & 1 \\ 1 & 2 & 3 \\ 1 & 3 & 3 \end{pmatrix}$ and $y = \begin{pmatrix} 3 \\ 1 \\ 6 \\ 5 \end{pmatrix}$ compute XTX and XTY x^{T} $y = \begin{pmatrix} 1 & 1 & 1 & 1 \\ 2 & 2 & 3 & 4 \\ 1 & 3 & 3 & 3 \end{pmatrix} \begin{pmatrix} 3 \\ 1 \\ 6 \\ 5 \end{pmatrix} = \begin{pmatrix} 15 \\ 46 \\ 39 \end{pmatrix}$ (4 11 10) (Bo) (15) (10 29 28 / B2 (39) Solve the system



The predictor function fo(x) is given by Fp (x") = + 2 + 2 x 1 + 2 x 2 b) Predict the autput for x = (2.5) fa((2.5))=-1+2-5=-3+5=2 0