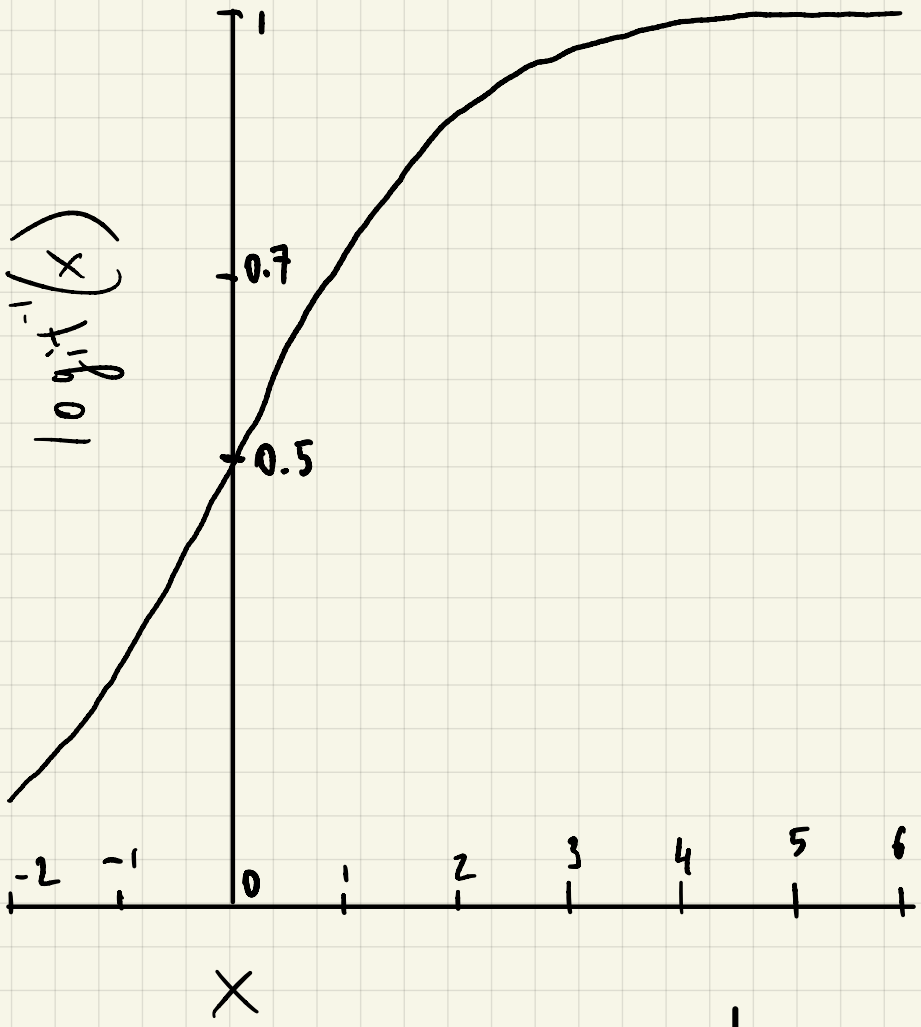
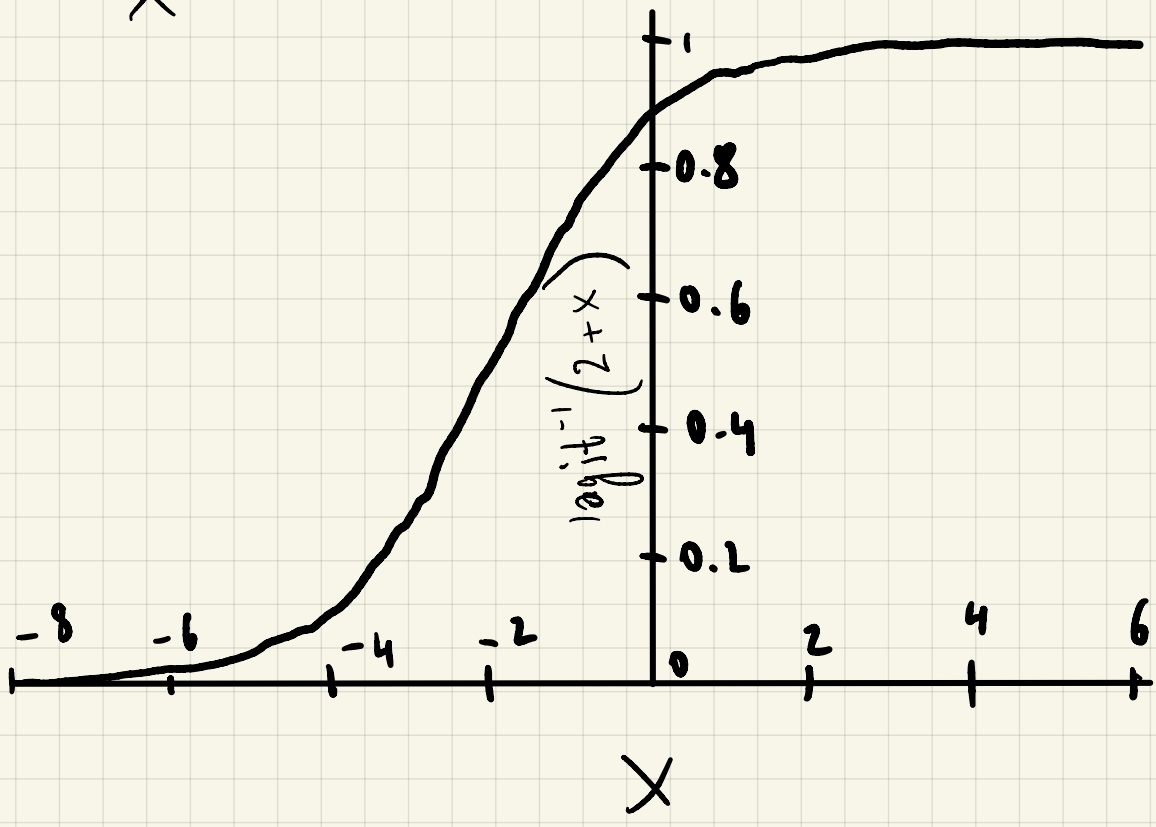
13.2

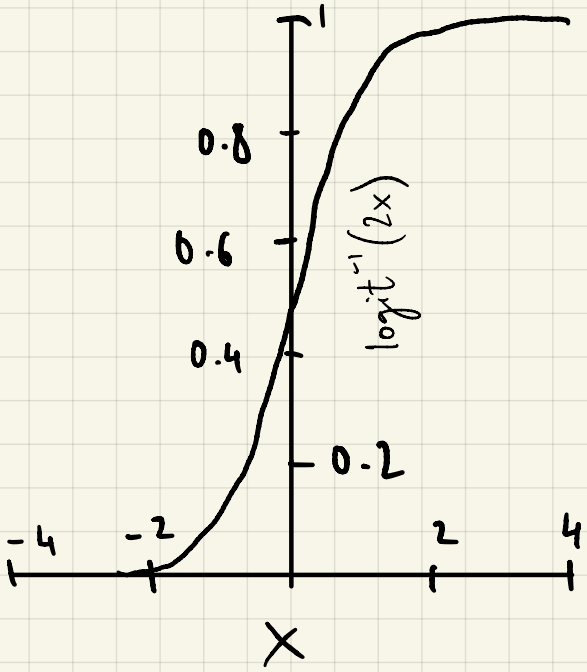
a)


1
0.7
0.5
$\text{logit}^{-1}(x)$
-2
-1
0
1
2
3
4
5
6
X

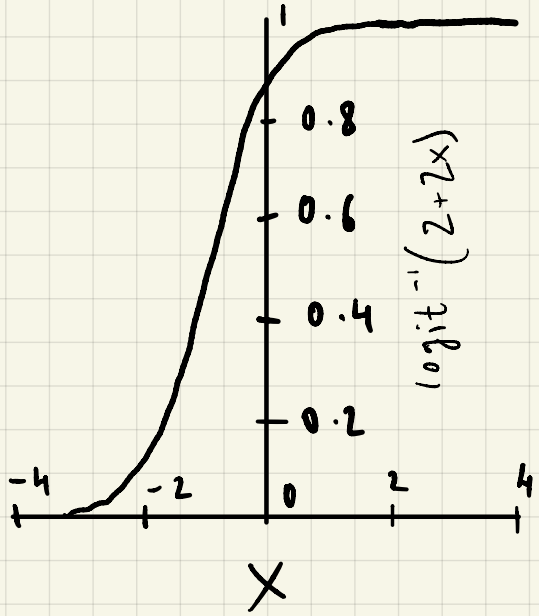
b)


1
0.8
0.6
0.4
0.2
$\text{logit}^{-1}(2+x)$
-8
-6
-4
-2
0
2
4
6
X

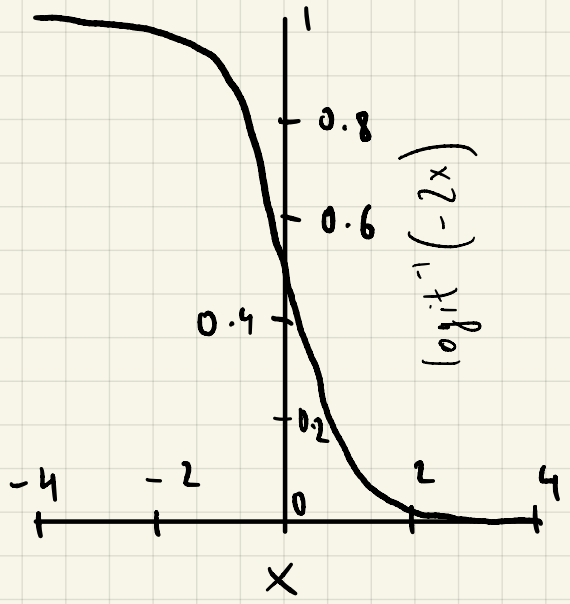
c)



d)



e)



13.3

i) Probabilities from Linear regression by using normal distribution

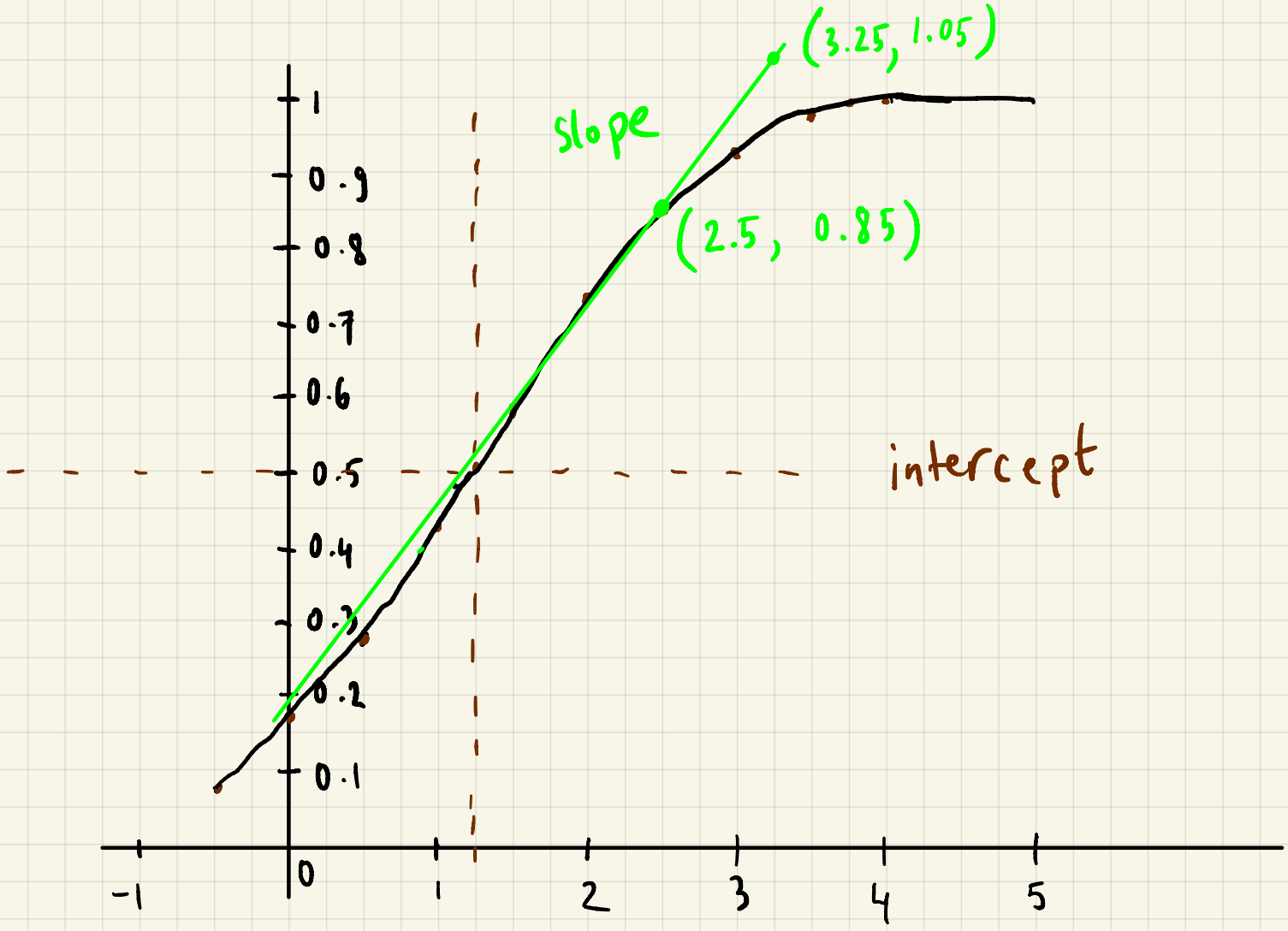
$50 \sim N(Y, 3.8)$

$Y = 46.2 + 3.1x$

x	Y	Pr(Vote>50)
-0.5	44.65	0.08
0	46.2	0.16
0.5	47.75	0.28
1	49.3	0.43
1.25	50.075	0.51

X	y	P(Vote > 50)
1.5	50.85	0.5885
2	52.4	0.736
2.5	53.95	0.85
3	55.5	0.93
3.5	57.05	0.97
4	58.6	0.99
4.5	60.15	0.996

ii)



The intercept is approximately at 1.25,

So $a = 1.25$.

The slope is $\frac{1.05 - 0.85}{3.25 - 2.5} = \frac{0.2}{0.75} = 0.267$

So, b will be $0.267 \times 4 = 1.0667$

Hence, $(a, b) \approx (1.25, 1.0667)$