A28_Hoermann

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Input Data

```
x = c(25, 30, 35, 40, 46, 50, 60, 64, 68, 70, 77, 80)
y = c(1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 1, 1)
dt = do.call(rbind, Map(data.frame, x = x, y = y))
dt
```

```
##     x y
## 1  25 1
## 2  30 0
## 3  35 0
## 4  40 1
## 5  46 0
## 6  50 1
## 7  60 1
## 8  64 0
## 9  68 1
## 10 70 0
## 11 77 1
## 12 80 1
```

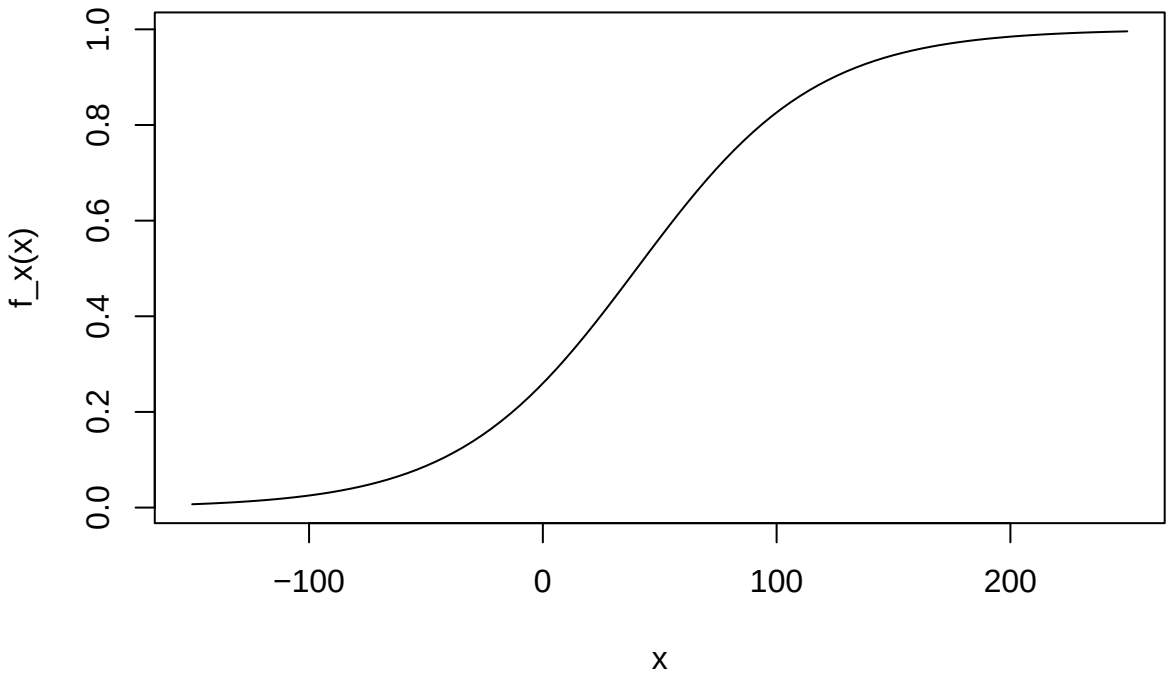
Logistic Regression

```
lr_x = glm(y~x, family = binomial)
lr_x
```

```
##
## Call:  glm(formula = y ~ x, family = binomial)
##
## Coefficients:
## (Intercept)            x
##    -1.04733      0.02606
##
## Degrees of Freedom: 11 Total (i.e. Null);  10 Residual
## Null Deviance:       16.3
## Residual Deviance: 15.69     AIC: 19.69
```

Visualization

```
b = lr_x$coefficients[1]
a = lr_x$coefficients[2]
f_x = function(x) {
  1/ (1 + exp(-(a*x + b)))
}
curve(f_x, from = -150, to = 250)
```



##

Anger potential

```
anger_pot = c(-150:250)
p_x = lapply(anger_pot, f_x)
p_anger = do.call(rbind, Map(data.frame, x = anger_pot, y = p_x))
p_anger[(p_anger$y > 0.245 & p_anger$y < 0.255) |
        (p_anger$y > 0.495 & p_anger$y < 0.505) |
        (p_anger$y > 0.745 & p_anger$y < 0.755),]
```

```
##       x         y
## x148 -2 0.2498418
## x149 -1 0.2547586
## x190 40 0.4988161
## x232 82 0.7483790
## x233 83 0.7532553
```

Picking closest:

For 0.25 it is -2, for 0.5 it is 40 and for 0.75 it's 82.