Example of a quasi-linear utility function:

$$U(x_1, x_2) = x_1 + \sqrt{x_2}$$

1. We need to make sure that both x_1 and x_2 are ≥ 0 because 1) the $\sqrt{}$ function is not defined and 2) we do not want to talk about negative consumption.

2. How does the indifference curve map look like? In order to do that, we have to fix the utility at some level u and find x_2 as a function of x_1:

$$u = x_1 + \sqrt{x_2}$$

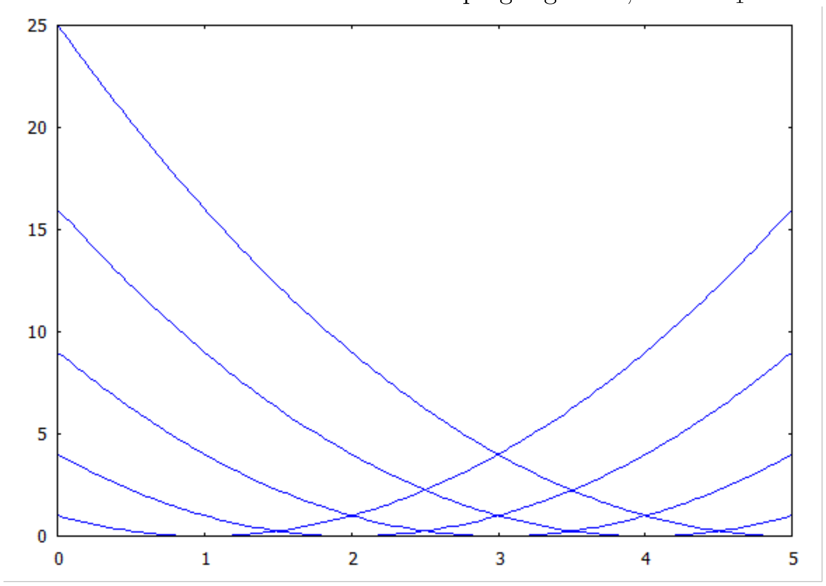
$$u - x_1 = \sqrt{x_2}$$

3. Now, the $\sqrt{x_2}$ cannot be negative and therefore $u - x_1$ cannot be negative, so we are interested in $x_1 < u$. To graph the indifference curves, we need to graph function:

$$x_2 = (u - x_1)^2 \text{ for } x_1 < u \text{ and } x_2 > 0$$

   for some values of u.

4. The figure below shows the indifference curves for $u = 1, 2, 3, 4, 5$ - the indifference curve are the downward sloping segments, where $x_1 < u$.



5. Note also that $\frac{\partial U}{\partial x_2} = \frac{1}{2\sqrt{x_2}}$ and therefore the curve is completely flat whenever it touches the horizontal axis (the consumer will never choose $x_2 = 0$).