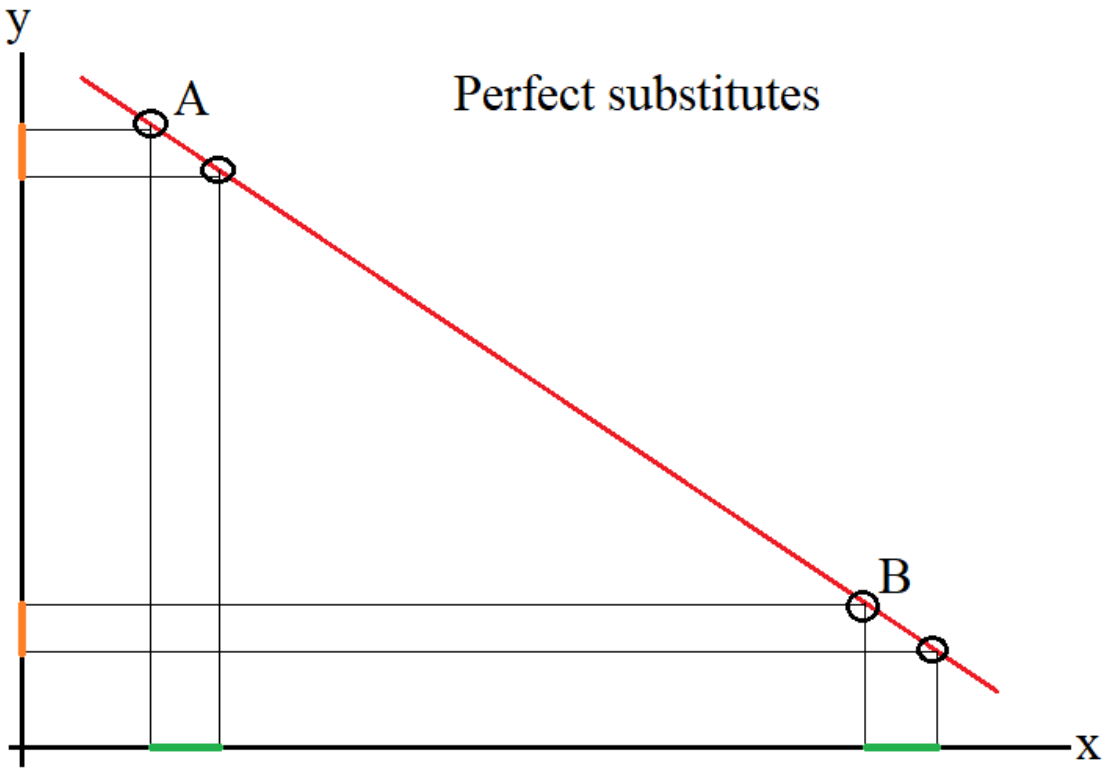
- If you have a lot of some good, your valuation of a marginal unit of this good is low.
- If you have a little of some good, your valuation of a marginal unit of this good is high.
- A mixed bundle is generally better than a one sided bundle.



Derivative

$$\lim_{\Delta x_1 \to 0} \frac{\Delta x_2}{\Delta x_1} = \frac{dx_2}{dx_1}$$

Questions

Question 1

Yes, because we suppose that preferences are stable over time, that is, they don't change. So if he chooses x over y one time, he would choose it every time when both options are available.

Question 2

Suppose the following:

- A is at least as tall as C ($A \gtrsim C$)

- A is at least as tall as B ($A \gtrsim B$)
- B is at least as tall as C ($B \gtrsim C$)

Is the relation transitive? Yes, because:

$$A \gtrsim B \gtrsim C$$

Is the relation complete? Yes, faced with every alternative, the individual is capable to make a choice.

Question 3

- A is at least as tall as C ($A \succ C$)
- A is at least as tall as B ($A \succ B$)
- B is at least as tall as C ($B \succ C$)

Is the relation transitive? Yes, because:

$$A \succ B \succ C$$

Is the relation complete? Yes, faced with every alternative, the individual is capable to make a choice.

Is the relation reflexive? Yes, because he is indifferent between each option when compared to itself.

$$A \sim A;\ B \sim B;\ \ C \sim C$$

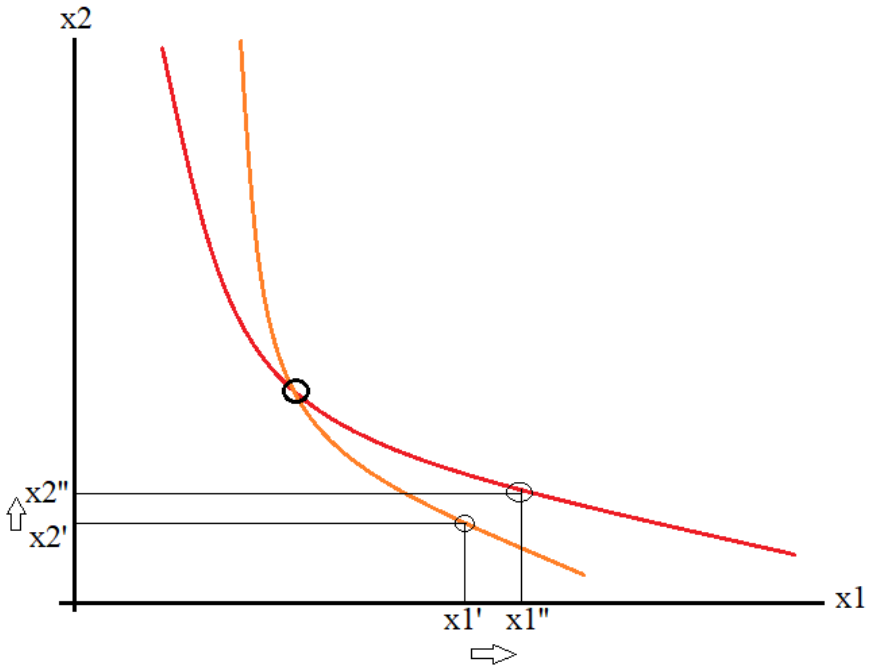
Question 4

The relation is not complete, because faced with one linemen faster and smaller and another slower and bigger, we don't know what his choice would be.

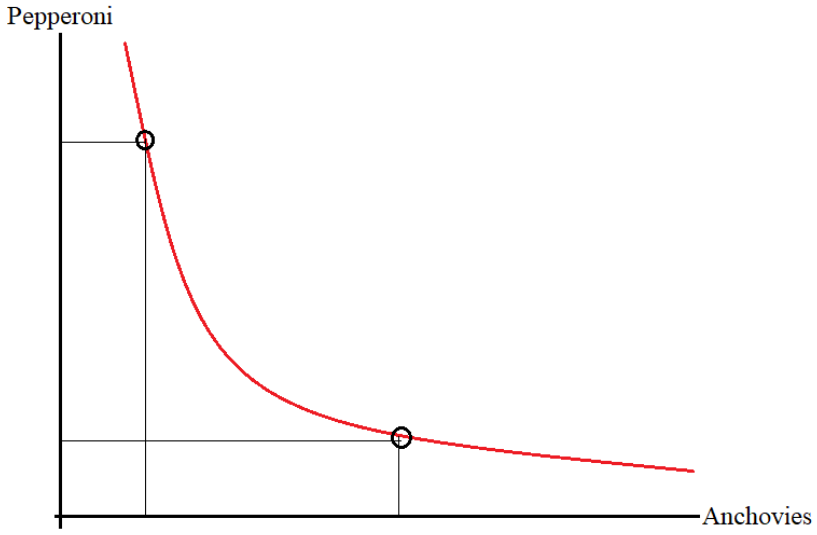
We lack sufficient information to answer the question regarding whether the preference is transitive or not.

Question 6

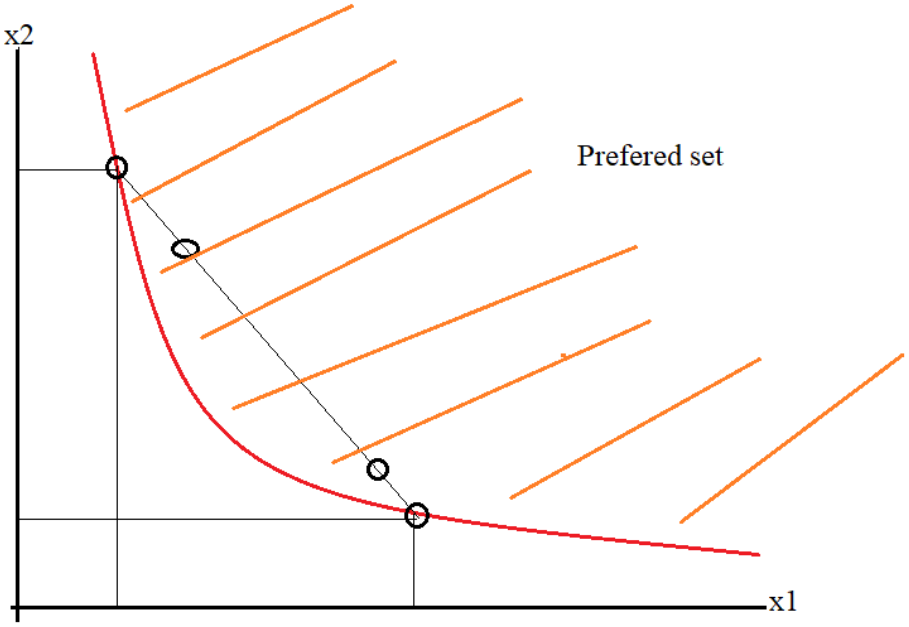
No, because if this were the case, then there would be bundles that have more of the two goods compared to another bundle and the individual would still be indifferent between the two bundles, as drawn on the graph below. But this contradicts the fact that the individual always prefers more of a good rather than less (that is, his preferences are **monotonic**).



Question 7



Question 8



Question 9

$$MRS_{\$5,\$1} = \frac{5}{1} = 5 \rightarrow 5\ \$1\ bills\ for\ 1\ \$5\ bill$$

$$MRS_{\$1,\$5} = \frac{1}{5} \rightarrow 1\ \$5\ bill\ for\ 5\ \$1\ bills$$