The Entrepreneur

An entrepreneur starts a new business.

He *manufactures* gadgets at a cost of $4x$ + 200 rands and then *sells* them for 5,50x rands, where x is the number of gadgets produced.

Profit = Income –Expenditure

1. Calculate his profit for different numbers of gadgets by completing the table.
   Note: Assume that he sells all the gadgets he produces.

# Gadgets (x)	50	100	150	200	250	300	500	1000
Profit (in rands)								

   Discuss: *How* did you calculate the profit?

2. How many gadgets must he produce and sell "to make a profit"?

3. How many gadgets must he make and sell to make a profit of R1000?

4. Draw graphs of the *Expenditure function* E(x) = 4x + 200 and the *Income function* I(x) = 5,50x on the same system of axes.
   Explain how/where you can you see from the graph
   (a) when he is making a profit, and
   (b) what is the profit?

5. He can increase his profit by making and selling more gadgets – *explain why!*
   But there are limits to the market and to his production capacity!

   Show how and why he can increase his profit by
   (a) reducing his production costs, and/or
   (b) increasing his selling price per gadget.

6. Draw the graph for the *Profit function* P(x) on the same system of axes.
   Explain how/where you can you see from this graph
   (a) when he is making a profit, and
   (b) what is the profit?

   Write down a formula for the *Profit function* P(x).
   How can you *check* that you are right?

What is the situation if he does *not* sell all the gadgets that he makes?

Die Entrepreneur

'n Entrepreneur begin 'n nuwe besigheid.

Hy *vervaardig* "gadgets" teen 'n koste van $4x$ + 200 rand en *verkoop* hulle dan vir 5,50x rand, waar x die getal gadgets is wat hy maak.

Wins = Inkomste –Uitgawes

1. Bereken sy wins vir verskillende hoeveelhede gadgets deur die tabel te voltooi.
   Let op: aanvaar dat hy al die gadgets wat hy maak verkoop.

# Gadgets (x)	50	100	150	200	250	300	500	1000
Wins (in rand)								

   Bespreek: *Hoe* het jy die wins bereken?

2. Hoeveel gadgets moet hy maak en verkoop om "'n wins te maak"?

3. Hoeveel gadgets moet hy maak en verkoop om 'n wins van R1000 te maak?

4. Trek grafieke van die *Uitgawe funksie* U(x) = 4x + 200 en die *Inkomste funksie* I(x) = 5,50x op dieselfde assestelsel.
   Verduidelik hoe/waar jy in die grafiek kan sien
   (a) wanneer hy 'n wins maak, en
   (b) wat die wins is?

5. Hy kan sy wins verhoog deur meer gadgets te maak en te verkoop – *verduidelik hoekom!*
   Maar daar is grense in die mark en in sy vervaardigingskapasiteit!

   Wys hoe en hoekom hy sy wins kan verhoog deur
   (a) sy produksiekoste te verlaag, en/of
   (b) die verkoopprys per gadget te verhoog.

6. Trek die grafiek van die *Wins funksie* P(x) op dieselfde assestelsel.
   Verduidelik hoe/waar jy in die grafiek kan sien
   (a) wanneer hy 'n wins maak, en
   (b) wat die wins is?

7. Skryf 'n formule vir die *Wins funksie* P(x).
   Hoe kan jy *kontroleer* dat jy korrek is?

Wat is die situasie as hy *nie* al die gadgets wat hy vervaardig verkoop nie?