 Simultaneous equations

A company makes and sells fidget spinners. They are sold on eBay for $8 each.

Step 1 – income

Using a spreadsheet or desmos, make a table of values showing the Income (I) for different quantities sold (n). For example, 0, 10, 20, 30… 110

Step 2 – costs

The fixed overhead expenses are $515 and it costs the manufacturer $2.50 for each fidget spinner made.

Using a spreadsheet or desmos, make a table of values for the number sold (n = 0, 10, 20, 30… 110) against the cost to produce this number of fidget spinners.



Step 3 – questions to consider

1. What is the break-even point?

Answer: From the graph $(93.6, 749)$



1. What does this mean in terms of the number of fidget spinners and the cost/income?

Answer: 94 fidget spinners would need to be sold for the income to be greater than the costs.

1. What is the slope of the income line?

Answer: 8

1. What is the Income equation ($I$) if $n$ is the number of fidget spinners sold?

Answer: $I=8n$

1. What is the slope of the cost line?

Answer: 2.5

1. What is the Cost equation ($C$) if $n$ is the number of fidget spinners sold (remember to add in the fixed costs)?

Answer: $C=515+2.5n$

1. If the fixed costs of $515 were reduced, with everything else remaining equal, describe how the break-even point would change (in relation to the graph)?

Answer: The break-even point would move towards the origin.