

While in college you want to make a little extra money so you start typing papers for other students. To do this you need to buy a new computer and a printer for \$1150. It costs you \$0.75 (paper, ink, etc) per page and you charge \$3.00 per page.

Find the number of pages you must type to Break-Even.

Break-Even Point: when $\text{Income} = \text{Expenses}$

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Income:

\$3.00 per page

Expenses:

\$1150 for equip

\$0.75 per page

Income Equation:

$$I = 3p$$

Expense Equation:

$$E = 1150 + 0.75p$$

$$3p = 1150 + 0.75p$$

$$2.25p = 1150$$

$$p = 511.11$$

$$p = 512$$

To start a lawn maintenance business you need to spend \$18,000 on new equipment. Each lawn costs you on average \$20 for fuel and labor. If you charge \$35 per lawn, find the number of lawns you have to cut in order to break even.

$$\begin{array}{r} \text{EXP} \\ + 18,000 \\ + 20l \\ - 20l \end{array}$$

$$\begin{array}{r} \text{Inc} \\ 35l \\ - 20l \\ \hline 15l \end{array}$$

$$\frac{18,000}{15} = \frac{15l}{15}$$

$$l = 1200$$

To make birdhouses a carpenter spent ~~\$750~~ on equipment. Each birdhouse costs \$15 in materials. What should the carpenter charge for each birdhouse in order to break-even after 50 birdhouses?

x = charge
per
birdhouse

$$\begin{array}{rcl} \text{EXP} & & \text{INC} \\ 750 + 15(50) & = & 50x \\ 750 + 750 & & \\ 1500 & = & 50x \\ \text{\$30} & = & x \end{array}$$

Here's a different situation:

You go to the store to buy some CD's and some DVD's.
You buy 4 CD's and 5 DVD's for \$82.91.

Your friend comes along with you and
buys 3 CD's and 7 DVD's for \$84.90.

Write and solve a system of equations to
find the price of a CD and the price of a DVD.

$$\begin{array}{l} 3(4C + 5D = 82.91) \\ 4(3C + 7D = 84.90) \end{array} \quad \begin{array}{l} 12C + 15D = 248.73 \\ 12C + 28D = 339.60 \\ \hline D = 11.99 \\ C = 6.99 \end{array}$$