

Math 20P:

Unit 1 Assignment 2

Due: Tuesday September 16th Period 1

SHOW ALL WORK AT ALL TIMES

You will receive marks for showing your work.

1. In a hockey arena, a seat at rink level costs three times as much as a seat in the upper level. If five seats at rink level cost \$168 more than eight seats in the upper level, find the cost of a seat at rink level.
2. Rachel had been saving quarters and dimes to buy a new toy. She had 100 coins and had saved \$20.65. How many coins of each type had she saved?
3. One year a man saved \$5 000. Next year his income increased by 10% and his expenditure decreased by 16%. He was able to save \$14 600. Calculate his income in the second year.
4. Chris walks at 8 km/h and runs at 12 km/h.

One day he walks and runs on the way from his house to the library. It takes him 20 minutes.

On his way back from the library he runs twice as far and the journey takes 17.5 minutes.

How far is his house from the library?
5. Hammurabi, a Babylonian (that's a hint!), has just received a new batch of 120 clay bricks that are 20 cm long. He is adding to his hanging gardens and wants to create a new flowerbed in an unused corner. The flowerbed is to cover 96 m².

6. Use the matrix function of your calculator (or a lot of time) solving this system of equations.

$$\begin{aligned}4a - 2b + 5c &= 27 \\-2a + b - 3c &= -14 \\-a + 7b + c &= -37 \\2b + 2d &= -6\end{aligned}$$

7. Janine is making two kinds of clothing. Sweaters need 500g of wool and take 6 hours to make. Vests need only 300g of wool but take 3 hours longer to make.

Janine has a 2.1 kg bale of wool and 36 hours to maximize her profit.

The bale cost \$30 she sells vests for \$30 and sweaters for \$36.

What is her maximum profit?

8. Graph the solution region for the following system of equations.

$$\begin{aligned}x + y &\geq 6 \\2x - y &< 4\end{aligned}$$