

1 Michael and Fran each sold some tickets. Michael's tickets sold for \$8 each and Fran's for \$4 each. If all the tickets had been sold, they would have collected \$128. However, Michael sold only three quarters of his tickets and Fran sold only half of hers. Together they sold 14 tickets.  
**How many tickets did each person have?**

2 An atom is a particle of matter made up of a nucleus and several electrons revolving around the nucleus. The nucleus consists of protons and neutrons. In the oxygen atom, the number of neutrons is one more than the number of protons, and 3 times the number of protons exceeds twice the number of neutrons by 6. This situation can be represented by the following system of equations :

$$p + 1 = n \quad \text{and} \quad 3p - 6 = 2n$$

where  $p$  represents the number of protons and  $n$  represents the number of neutrons. **How many neutrons are there?**

3 Last week, 51 identical small cases and 98 identical large cases were loaded into a space of  $39.6 \text{ m}^3$ . This week, 102 of the small cases and 49 of the large cases were loaded into a space of  $35.1 \text{ m}^3$ . Next week, 120 large cases will have to be loaded. **How many metres cubed of space will be filled by these 120 large cases?**

4 To raise money for their graduation dance, the Secondary V students in a school bought shirts and made a profit reselling them. The following table shows the profit earned from selling different quantities of short-sleeved and long-sleeved shirts. **What profit will the students earn if they buy and resell 250 short-sleeved shirts and 200 long-sleeved shirts?**

Number of Shirts Sold		Profit
short-sleeved	long-sleeved	
450	300	\$2700
300	250	\$1950

5 A contractor has to transport 460 tonnes of earth. He has only 2 trucks. One truck has a capacity of 5 tonnes and the other truck has a capacity of 3 tonnes. He wants to make 100 trips. **Calculate the number of trips that the 5 tonne truck has to make.**

6 The cost of taking the train from Lévis to Drummondville is \$149.50 for 2 adults and 3 children. The same trip costs \$161.75 for 3 adults and 2 children. **What is the cost for a group of 4 adults and 20 children?**

7 A local high school ordered 20 balls for basketball and soccer for a total cost of \$825. The price of a basketball is \$40 and a soccer ball is \$45. **How many soccer balls did they buy?**

8 In an appliance warehouse, there are 240 appliances. It was found that there are 11 times as many appliances which are in good working order as those which are defective. **How many appliances are defective?**

9 A high school band comprises at most 40 musicians, both male and female. One-half the number of girls in the band is at least 5 more than the number of boys in the band. Let  $x$  represent the number of boys and  $y$ , the number of girls. **What system of linear inequalities describes this situation?**

10 Michelle collects empty bottles for resale to the grocery store. She earns \$0.10 for a small bottle and \$0.25 for a large one. She collects at most 30 bottles per week and earns at least \$4.50. **Give 3 possibilities of her sales of small bottles ( $s$ ) and large bottles ( $l$ ).**

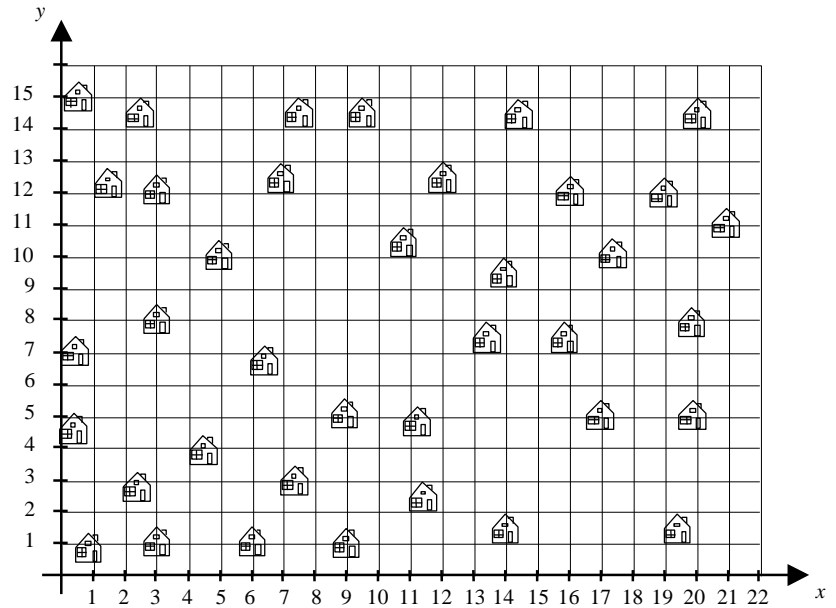
11

The following graph represents a neighbourhood in your city. You are hired to carry out a census of the people who live in the region of the neighbourhood defined by the following system of inequalities:

$$y \leq x + 2$$

$$y \geq -2x + 10$$

If you are paid \$4.25 per house within the region, **calculate the amount you will earn for the census.**



12

The location of a garden in a Cartesian coordinate graph is determined by the solutions for the system of inequalities given below. The scale of the graph is in metres.

$$x \leq 6$$

$$y \leq 15$$

$$y \geq 2x - 3$$

$$5x + 2y \geq 3$$

A fence was put up around the edge of the garden. **What is the length of the fence to the nearest tenth?**

