

PROPORTION - 2º ESO

1) Fill in the gaps knowing that the following magnitudes are directly proportional. Find also the value of the constant k .

4		9	7	1		0.4
	35		49		12	

2) Fill in the gaps knowing that the following magnitudes are inversely proportional. Find also the value of the constant k' .

30		6	5			0.5
	3	10		1	25	

3) Calculate the value of x :

a) $\frac{3}{12} = \frac{5}{x}$

b) $\frac{2}{16} = \frac{3}{x}$

c) $\frac{x}{5} = \frac{16}{40}$

d) $\frac{2}{14} = \frac{x}{42}$

e) $\frac{11}{13} = \frac{55}{x}$

f) $\frac{28}{70} = \frac{x}{90}$

4) A machine produces two hundred bottles every five minutes. How many bottles will the machine produce in eight minutes? And in thirty seconds?

5) A hotel charges €343 per person for seven days. Calculate the charge for twelve days at the same rate.

6) A candle that is twenty-four cm tall will burn for eight hours. What height remains when the candle has been burning for three hours and a half?

7) Find:

- a) 5% of 120
- b) 30% of 270
- c) 8% of 72
- d) 75% of 50

8) A boy gets one hundred and forty-two marks out of two hundred in an exam. What percentage is this?

9) There are forty red, sixty green, one hundred yellow and fifty brown apples in a bag. What percentage of the total number of apples is each colour?

10) A real estate agent gets a €4100 commission when he sells a house for €164000. What percentage of the total price does he get for selling the house?

11) An article that cost €240 is increased in price by €60. What is the increase as a percentage?

12) A Math book had three hundred and sixty pages. The new edition was published with only three hundred and forty-three pages. Calculate the percentage decrease in the number of pages of the book.

13) A car costing €12000 in cash can be bought on credit by paying a 25% deposit and followed by 24 monthly payments of €400

- a) How much will the car cost on credit?
- b) What's the extra cost above the cash price?

14) A bag of cheese and onion chips usually weighs 60g, but now it's marked "15% extra free." What's the weight of the chips in the bag now?

15) Sarah earns €520 per week. She receives a pay raise of 4%. How much does she earn now?

16) A truck is carrying 750kg of sand. For safety reasons it has to reduce its load by 18%. Calculate the new weight the truck has to carry now.

17) During a sale we can find the following offers:

- a) An €80 jacket is reduced 20%
- b) A €180 iPod is reduced 25%

What are the new prices of both articles now?

18) Michael received a 4% increase in his salary. Now his new salary is €572 per week. What was Michael's salary before the increase?

19) The price of a holiday is decreased by 8% to €583. What was the original price of the holiday?

20) A faucet needs twenty minutes to fill a reservoir pumping one hundred and twenty liters of water a minute. How long would it take the faucet to fill the reservoir if it pumped one hundred and fifty liters a minute? What's the capacity of the reservoir?

21) In order to store a certain amount of oil, we need sixty four cans of two hundred liters each. If we only have sixteen cans, how many liters would I have to fill each one of them with so there is no oil left?

22) A boat travelling at a speed of twenty-four kilometers per hour needs twelve hours to cover a certain distance. How long would it take another boat to cover the same distance if its speed was thirty-two kilometers per hour?

23) Three gardeners needed one hundred and twenty hours to plant all the flowers in a park. If I can hire two more gardeners, how long would it take them to plant the same amount of plants?

24) I have been studying three hours a day in order to pass my English exam, which was set four weeks from now. But there has been a change of dates and now I only have one and a half weeks. How many hours a day would I have to study to be sure that I know all the units? Will I succeed?

25) John pays €30 a month for his phone bill. He gets an offer for a 15% discount, but then he has to pay 21% of IVA. What's the final amount of his phone bill?

26) I found this recipe for pancakes on the Internet, but it's planned for eight servings. These are the ingredients:

- a) 200 g of flour
- b) 10 g of baking powder
- c) 6 g of salt
- d) 300 ml of milk
- e) 1 egg
- f) 50 g of melted butter
- g) 10 g of white sugar

-) I want to make this recipe just for myself. What amount of ingredients should I use?

-) The serving of pancakes has 158 kcal. Find the percentage based on a 2000 calories daily diet.

-) I am ingesting 41mg of cholesterol, corresponding to a 14% of the recommended daily amount. What's the total of recommended daily cholesterol?

27) Joan has bought forty toys, €14 each. How many toys could he buy with the same amount of money if the price of each toy was €8?

28) Two schools are to receive a grant from the Department of Education in proportion to their number of pupils. If one school has 450 students and the other one has 720, how would a grant of €56160 be divided between them?

29) The profits of a business are divided in the ratio of money invested. A, B and C invest €24000, €16000, and €12000 respectively. How much will each receive from a profit of €6500?

30) €42 is divided between A, B and C so that A gets twice as much as B and B gets twice as much as C. How much does B receive?