



## Unit 5. PROPORTIONS.

### 1. PROPORTION AND RATIO. (Razón y Proporción).

A **ratio** is a division into two comparable magnitudes. The ratio between two numbers is how many times one is bigger than the other.

#### Ejemplo

La razón entre la masa del saco grande y la del pequeño es  $\frac{7,5}{2,5} = 3$ , lo que significa que el saco grande tiene 3 veces la masa del saco pequeño.

A **proportion** is a name we give to a statement that two ratios are equal. It can be written in two ways:

- two equal fractions:  $\frac{a}{b} = \frac{c}{d}$

or,

- using colons: **a:b = c:d**

When two ratios are equal, then the cross products of the ratios are equal.

That is, for the proportion, **a:b = c:d**, **a x d = b x c**

$$\frac{3}{5} = \frac{21}{35}$$

cross product

The following proportion is read as "twenty is to twenty-five as four is to five."

$$\frac{20}{25} = \frac{4}{5}$$



#### Example:

The five-litre bottle of oil costs € 13.6, and the two-litre bottle costs € 5.4. The price per litre, which is the proportion constant, is the same in both bottles:

$$\frac{13,5}{5} = \frac{5,4}{2} = 2,7 \text{ €}$$

In problems involving proportions, we can use cross products to test whether two ratios are equal and form a proportion. To find the cross products of a proportion, we multiply the outer terms, called the extremes, and the middle terms, called the means.

**EXAMPLE:**

Find whether each of the following statements is a proportion:

a)  $\frac{2}{3} = \frac{6}{9}$       Using cross products to verify:  $2 \times 9 = 3 \times 6$ .


So, it's a proportion.

b)  $\frac{4}{3} = \frac{20}{18}$       Using cross products to verify:  $4 \cdot 18 \neq 3 \cdot 20$ .

So, it's not a proportion.

**EXAMPLE:** What value of "n" will make this a proportion?  $\frac{6}{15} = \frac{n}{25}$

**EXERCISES: Problem solving**

- Every week I eat 7 cakes,  
so every 2 weeks I eat \_\_\_\_\_ cakes,  
and every 3 weeks I eat \_\_\_\_\_ cakes.
- For every 2 bags of crisps you buy you get 1 sticker,  
For every 6 bags of crisps you buy you get \_\_\_\_\_ stickers.  
To get 5 stickers you must buy \_\_\_\_\_ of crisps.
- Colour 1 in every 3 squares black in this pattern.  
Are there 2 black squares black for every 6 squares? yes/no.  
  

- Make a tile pattern where 1 in every 5 tiles is black.
- Mary uses 3 tomatoes for every  $\frac{1}{2}$  litre of sauce.  
How many tomatoes does she need for 1 litre of sauce?  
How many tomatoes does she need for 2 litres of sauce?

6. A mother seal gets 5 fish for every 2 fish for its baby.  
Alice gave the mother seal 15 fish.  
How many fish did its baby get?
7. A mother seal gets 5 fish for every 2 fish for its baby.  
Alice gave the baby seal 8 fish.  
How many fish did its mother get?
8. The juice of 5 oranges is used to make one jug of orange squash.
- a. How many oranges will you need to make 2 jugs of orange squash?  
What operation do you need to use?
- b. How many jugs could you make using 36 oranges?  
What operation do you need to use?

## 2. DIRECT PROPORTION.

Two variables are in direct proportion to one another if they are always in the same ratio.

Values that are in direct proportion are often displayed in a table.

<b>x</b>	2	4	10
<b>y</b>	8	16	40

Notice that if x is doubled, then y is doubled too. All the values fit the equation  $y=4x$ .

Let's put it another way:

The formal definition of direct proportion is:

Two quantities, A and B, are in direct proportion if by whatever factor A changes, B changes by the same factor.

Here is a shorthand way to say that the quantities A and B are directly proportional:

$$A \propto B$$

The Greek letter between the A and the B is called alpha. It is here written in lower case script. In this context it is shorthand for the phrase "is directly proportional to." So, the above statement reads "A is directly proportional to B."

### How can we determine if two variables are directly proportional?

Think about these tables:

y	1	2	3	4	5	6
x	2	4	6	8	10	12
y/x	0.5	0.5	0.5	0.5	0.5	0.5

y	1	2	3	4	5	6
x	3	5	7	9	11	13
y/x	1/3	2/5	3/7	4/9	5/11	6/13

FOR MORE PRACTICE EXERCISE ABOUT DIRECT PROPORTIONS, PLEASE VISIT THIS WEBPAGE.

[http://www.gobiernodecanarias.org/educacion/9/Usr/eltanque/proporcionalidad/proporc\\_p.html](http://www.gobiernodecanarias.org/educacion/9/Usr/eltanque/proporcionalidad/proporc_p.html)



**EXERCISE 1.** Solve the [following proportion](#) by cross-multiplying. (Copy two examples into your notebook)

**EXERCISE 2.** Try the next [interactive activity](#) to understand ratios.

<http://www.bbc.co.uk/skillswise/numbers/wholenumbers/ratioandproportion/ratio/flash1.shtml>

### EXERCISE 3. Do the following test to check what you have learnt about ratios and direct proportion

#### Test 1: Very easy

[http://www.bbc.co.uk/apps/ifl/skillswise/mod\\_quizzes/numbers/wholenumbers/ratioandproportion/ratio/quizengine?quiz=simplequiz1;templateStyle=simplequiz;pagerType=pages;pageNumber=1](http://www.bbc.co.uk/apps/ifl/skillswise/mod_quizzes/numbers/wholenumbers/ratioandproportion/ratio/quizengine?quiz=simplequiz1;templateStyle=simplequiz;pagerType=pages;pageNumber=1)

#### Test 2: A bit harder

[http://www.bbc.co.uk/apps/ifl/skillswise/mod\\_quizzes/numbers/wholenumbers/ratioandproportion/ratio/quizengine?quiz=simplequiz2;templateStyle=simplequiz;pagerType=pages;pageNumber=1](http://www.bbc.co.uk/apps/ifl/skillswise/mod_quizzes/numbers/wholenumbers/ratioandproportion/ratio/quizengine?quiz=simplequiz2;templateStyle=simplequiz;pagerType=pages;pageNumber=1)

#### Test 3: Only for confident students

[http://www.bbc.co.uk/apps/ifl/skillswise/mod\\_quizzes/numbers/wholenumbers/ratioandproportion/ratio/quizengine?quiz=simplequiz3;templateStyle=simplequiz;pagerType=pages;pageNumber=1](http://www.bbc.co.uk/apps/ifl/skillswise/mod_quizzes/numbers/wholenumbers/ratioandproportion/ratio/quizengine?quiz=simplequiz3;templateStyle=simplequiz;pagerType=pages;pageNumber=1)

### EXERCISE 4. Cantidades relacionadas o independientes.



En el dibujo vemos un grupo de 8 personas que están en la cola para comprar la entrada del cine. Si vienen más personas al cine, la cola se hará más larga. Si hubiera pocas personas, la cola sería más pequeña.

La longitud de la cola y el número de personas dependen entre sí, es decir, están relacionadas.

Cuando una "cosa" depende de otra decimos que las dos "cosas" están relacionadas.

Pero el número de personas que hay en la cola y el número de coches que pasan por la calle no están relacionadas, ni depende una cosa de la otra. Se dice que esas cantidades son independientes.

1. Las horas que yo trabajo y el jornal que gano son cantidades...	Relacionadas	Independientes
2. El número de ruedas de un camión y su velocidad son...	Relacionadas	Independientes
3. El peso y la cantidad de agua son...	Relacionadas	Independientes
4. La altura de un hombre y su inteligencia son...	Relacionadas	Independientes
5. El color de un coche y su velocidad máxima son...	Relacionadas	Independientes
6. La velocidad del tren y lo que tarda en ir de una ciudad a otra son cantidades...	Relacionadas	Independientes

**TABLA 1**

Número de huevos	1	2	3	4	5	6	7
Valor en pesetas	5	10	15	20	25	30	35

**TABLA 2**

1	2	3	4	5	6	7	× 5
5	10	15	20	25	30	35	

**TABLA 3**

: 5	1	2	3	4	5	6	7	× 5
	5	10	15	20	25	30	35	

### EXERCISE 5. Cantidades relacionadas y proporcionales.

Si un huevo vale 5 pesetas, 2 valdrán 10 pesetas y 3 huevos 15 pesetas.

En la tabla 2 vemos que la serie de números de arriba se han multiplicado por 5 para calcular la serie de abajo.

Dos series de números son proporcionales cuando existe un operador de multiplicar o un operador de dividir que permite pasar de una serie a otra.

Pero hay cantidades relacionadas que no son proporcionales. Por ejemplo: la edad de un chico y su peso. Si un chico de 6 años pesa 30 kilos, otro chico de 12 años no necesariamente pesará 60 kilos. ( $6 \times 2$  y  $30 \times 2$ ). A los 24 años no necesariamente pesará 120 kilos. ( $6 \times 4$  y  $30 \times 4$ ).

Contesta a estas cuestiones diciendo si son cantidades relacionadas o proporcionales.

<b>1. Los kilos de arroz que vendo y el dinero que me pagan son...</b>	<i>Relacionadas</i>	<i>Proporcionales</i>
<b>2. La edad de una niña y su peso son...</b>	<i>Relacionadas</i>	<i>Proporcionales</i>
<b>3. El abono que ponemos a la tierra y el resultado de la cosecha son...</b>	<i>Relacionadas</i>	<i>Proporcionales</i>
<b>4. El número de carpinteros y el número de sillas que fabrican son...</b>	<i>Relacionadas</i>	<i>Proporcionales</i>

### EXERCISE 6. Relaciones directas e inversas.

Las relaciones estudiadas eran directas, es decir, cuando una cantidad era mayor, la otra también era mayor.

Ahora veremos relaciones inversas, es decir, que una cantidad se hace más grande, mientras que la otra se hace más pequeña.

Ejemplo: La edad de un anciano y la fuerza que tiene. Al aumentar la edad, disminuye su fuerza. Es una relación inversa.

Contesta diciendo si son relaciones directas o inversas:

<b>1. La velocidad de un tren y el tiempo que tarda en ir entre dos ciudades es una relación...</b>	<i>Directa</i>	<i>Inversa</i>
<b>2. El número de obreros que trabajan y el número de muebles que fabrican es...</b>	<i>Directa</i>	<i>Inversa</i>
<b>3. La potencia de un automóvil y su velocidad es...</b>	<i>Directa</i>	<i>Inversa</i>

4. El tiempo para construir una carretera y el número de obreros que trabajan es...	Directa	Inversa
5. El número de parejas que se casan y el número de hijos que nacen es...	Directa	Inversa
6. El tiempo para vaciar un barril y el tamaño del agujero es...	Directa	Inversa

### EXERCISE 7. Cantidades directamente proporcionales e inversamente proporcionales.

Cuando la relación entre dos cantidades es exacta, se llama proporción.

Son directamente proporcionales cuando si hay 3 veces más de una cosa, hay 3 veces más de la otra.

Ejemplo: Un paquete de tabaco vale 2 euros; 3 tres paquetes valdrán 6 euros (2 x 3).

Son inversamente proporcionales cuando si hay 7 veces más de una cosa, habrá 7 veces menos de la otra.

Ejemplo: Si un segador tarda en segar un campo 21 horas, 7 segadores tardarán 3 horas. (21 :7).

Contesta diciendo si estas proporciones son directas o inversas:

1. El número de leñadores y el número de árboles que pueden cortar es una proporción...	Directam. Proporc	Invers. Proporc.
2. La velocidad de un avión y el tiempo que tarda en hacer un viaje es...	Directam. Proporc	Invers. Proporc.
3. La cantidad de cigarrillos que fumo y lo que gasto fumando es...	Directam. Proporc	Invers. Proporc.
4. El número de cuadernos que compro y lo que tengo que pagar es...	Directam. Proporc	Invers. Proporc.
5. Si tienes 12 euros para comprar libros, el número de libros que puedes comprar y su precio es...	Directam. Proporc	Invers. Proporc.
6. El número de pintores y el tiempo que tardan en pintar una casa es...	Directam. Proporc	Invers. Proporc.

### HOW TO SOLVE A PROBLEM WITH A DIRECT PROPORTION (Regla de tres directa)

La regla de tres directa es un procedimiento que tiene por objeto hallar el cuarto proporcional. Se plantea de la siguiente forma:

a) Se colocan los datos y se determina si la proporcionalidad es directa:

Magnitud A (unidad)      (D)      Magnitud B (unidad)

$$\left. \begin{array}{ccc} a & \longrightarrow & c \\ b & \longrightarrow & x \end{array} \right\}$$

b) Se forma la proporción y se calcula el cuarto proporcional:

$$\frac{a}{b} = \frac{c}{x} \Rightarrow x = \frac{b \cdot c}{a}$$

### EXERCISE 1. If 10 calculators cost £120, how much will 8 calculators cost?

**EXERCISE 2. Practice Questions**

Work out the answer to each of these questions :

(a) If 5 bags of sweets contain 90 sweets in total, calculate how many sweets seven bags will contain

(b) If 25 blank CDs cost £5.50, calculate the cost of 11 blank CDs.

**EXERCISE 3. Work out the answers to the questions below and fill in the boxes.**

If 5 tickets for a play cost £40, calculate the cost of:

(a) 6 tickets .....

(b) 9 tickets .....

(c) 20 tickets .....

**EXERCISE 4. To make 3 glasses of orange squash you need 600ml of water. Work out how much water you need to make:**

(a) 5 glasses of squash ..... ml

(b) 7 glasses of squash..... ml

(c) 1 glass of squash..... ml

**EXERCISE 5. If 10 litres of petrol cost £8.20, calculate the cost of:**

(a) 4 litres.....

(b) 12 litres.....

(c) 30 litres.....

**EXERCISE 6. A baker uses 1,800 grams of flour to make 3 loaves of bread. How much flour will he need use if he wants to make:**

(a) 2 loaves.....grams

(b) 7 loaves.....grams

(c) 24 loaves.....grams

**EXERCISE 7. Ben buys 21 football stickers for 84p. Calculate the cost of:**

(a) 7 stickers .....pence

(b) 12 stickers..... pence

(c) 50 stickers..... pence

**EXERCISE 8. 16 teams, each with the same number of people, enter a quiz. At the semi-final stage there are 12 people left in the competition.**

**How many people entered the competition? .....people**



**EXERCISE 9.** Three identical coaches can carry a total of 162 passengers.

How many passengers can be carried on seven of these coaches?  
..... people.

### 3. INVERSE PROPORTION.

In an inverse proportion one value increases as the other value decreases.

Example:

Nº de obreros	Nº de días
10	6
20	3
30	2
40	1,5
50	1,2
60	1

### HOW TO SOLVE A PROBLEM WITH AN INVERSE PROPORTION: (REGLA DE TRES INVERSA)

Se aplica el siguiente procedimiento:

a) Se colocan los datos y se determina si la proporcionalidad es inversa:

$$\begin{array}{ccc}
 \underline{\text{Magnitud A (unidad)}} & \text{(I)} & \underline{\text{Magnitud B (unidad)}} \\
 a & \longrightarrow & c \\
 b & \longrightarrow & x
 \end{array}
 \left. \vphantom{\begin{array}{ccc} a & \longrightarrow & c \\ b & \longrightarrow & x \end{array}} \right\}$$

b) Se forma la proporción en la que la razón de las cantidades de la magnitud A aparece invertida:

$$\frac{b}{a} = \frac{c}{x} \Rightarrow x = \frac{a \cdot c}{b}$$

**Ejemplo**

Para almacenar una colección de cómics hemos utilizado 60 carpetas con 4 cómics cada una. Si se quieren almacenar 5 cómics en cada carpeta, ¿cuántas se necesitarán?

a) Se colocan los datos:

b) Se forma la proporción:

<u>Nº comics</u>	(I)	<u>Nº Carpetas</u>	}	$\Rightarrow$	$\frac{5}{4} = \frac{60}{x}$	$\Rightarrow$	$x = \frac{4 \cdot 60}{5}$	$= 48$	carpetas
4	→	60			$\frac{5}{4}$		$\frac{60}{x}$		
5	→	x			$\frac{5}{4}$		$\frac{60}{x}$		

↑  
Invertido para formar proporción

**EXERCISE 1.** At the rate of 28 lines per page, a book has 300 pages. If the book has to contain only 280 pages, how many lines should a page contain?

**EXERCISE 2.** A farmer has enough grain to feed 50 cattle for 10 days. He sells 10 cattle. How many days will the grain last now?

**EXERCISE 3.** In an army camp, there is food for 8 weeks for 1200 people. After 3 weeks, 300 more soldiers join the camp. For how many more weeks will the food last?

**EXERCISE 4.** It is known that current (A) in an electric circuit is inversely proportional to the resistance (R) in the circuit. When the resistance is 3 ohms, the current is 2 amperes. Find the resistance if the current is 5 amperes; and find the current when the resistance is 5 ohms.

**EXERCISE 5.** Some people working at the rate of 6 hours a day can complete the work in  $19 \frac{1}{2}$  days. As they have received another contract, they want to finish this work early. Now they start working  $6 \frac{1}{2}$  hours a day. How many days will they take to finish this work?

**EXERCISE 6.** If  $y$  varies inversely as  $x$ ; and  $x=6$  when  $y=-3$ , find  $y$  when  $x=-9$

**EXERCISE 7.** 35 trucks are necessary to transport all the grain in a warehouse at the rate of 80 bags a truck. But the truck drivers object, saying it was too heavy, and carry only 70 bags a truck. How many more trucks are needed to transport the grain?

## 4. PERCENTAGE.

### 4.1. What does % mean?

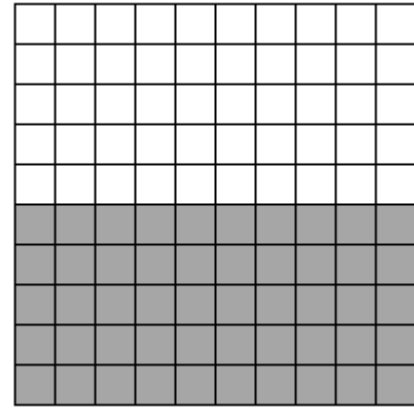
You probably already know a bit about percentages. Shops use percentages in sales. Banks use them for loan rates. Weather forecasts use them to tell us the chances of rain. But what does **percentage** mean?



Look at this square. It has been divided into 100 equal parts. 50 parts are shaded grey.

We say that fifty per cent of the square is shaded grey.

You can use a percentage symbol to write this as 50%.



Now 20 parts have been coloured black. 20 out of the 100 is 20%, so 20% of the square is black.

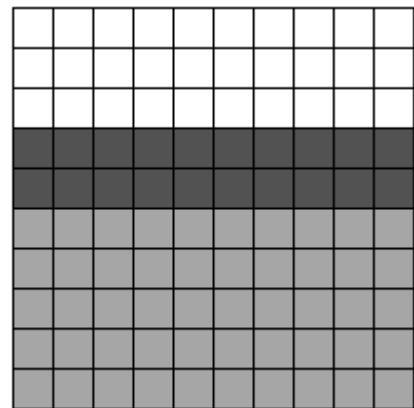
There are 30 parts not shaded. 30 out of 100 is 30%, so 30% of the square is white.

What happens if you add up the percentages for the grey, black and white parts?

30

20

50



$$50\% + 20\% + 30\% = 100\%$$

So the whole square is equal to 100%

100% is '100 out of 100'. It means full marks in a test, or 100% fitness means full fitness. If you give 100% you give everything.



#### 4.2. Fractions and %

Skirts are on sale at 50% off the original price of £20. How much are they now?

If you said £10 well done! It is quite easy to find the answer if you can remember that finding 50% is the same as finding a half, or dividing by two.

Here are the fractions for some other percentages:

percentage	fraction
10%	$\frac{1}{10}$
20%	$\frac{1}{5}$
25%	$\frac{1}{4}$
50%	$\frac{1}{2}$
75%	$\frac{3}{4}$

**Examples**

20% is the same as  $\frac{1}{5}$  so divide by 5 to find the saving.

10% is the same as  $\frac{1}{10}$  so divide by 10 to find the saving.

**Example**

To pass a national exam you need to get 75%. There are 40 questions altogether. How many do you need to get right?

75% is the same as  $\frac{3}{4}$  so find  $\frac{1}{4}$  then multiply by 3 to find  $\frac{3}{4}$ .

$$\frac{1}{4} \text{ of } 40 = 40 \div 4 = 10$$

$$\frac{3}{4} \text{ of } 40 = 3 \times 10 = 30$$

So you need to get **30** questions right to pass the exam.

**4.3. Comparing sizes**

It is quite easy to compare percentages of one particular thing. For example, if your boss offered you the choice of a 10% pay rise or a 20% pay rise, which would you choose?

If you went for 20%, well done!

20% is the better pay rise as it is a bigger proportion of your wage than 10%. You have to be a bit more careful if you are finding, or comparing, percentages of different things.

**Example**

What happens if everyone in a company gets an increase of 50%? They would not all get the same pay rise, because the size of 50% increase depends on the original wage. Here are some examples:

wage	50%	new wage
£100	£50	£150
£150	£75	£225
£200	£100	£300

**Example**

Which is the best bargain?

You must work out which is the best value.

50% off £16 is half price, so the first item now costs £8.



25% off is a quarter off, so the £10 item now costs £7.50.

Can you see that even though the second one had less of a percentage saving it was still the best buy?

**To know the value of a percentage you must know what it is a percentage of.**

Here there are **two** activities to see what percentages look like. In the second one you can compare percentages and fractions.

Percentages of something.

<http://www.bbc.co.uk/skillswise/numbers/fractiondecimalpercentage/percentages/introduction/flash2.shtml>



See percentages and fractions side by side.

<http://www.bbc.co.uk/skillswise/numbers/fractiondecimalpercentage/percentages/introduction/flash3.shtml>



Do the following interactive exercises to know how to calculate percentages.

**Exercise 1.**

[http://www.gobiernodecanarias.org/educacion/9/Usr/eltanque/proporcionalidad/txc/txc\\_p.html](http://www.gobiernodecanarias.org/educacion/9/Usr/eltanque/proporcionalidad/txc/txc_p.html)

**Exercise 2**

[http://www.gobiernodecanarias.org/educacion/9/Usr/eltanque/proporcionalidad/txcc/txcc\\_p.html](http://www.gobiernodecanarias.org/educacion/9/Usr/eltanque/proporcionalidad/txcc/txcc_p.html)

**Exercise 3.**

Calculate 30% of 1000 and 20% de 300.

**Exercise 4.**

Read the following web pages:

**Sheet 1**

(<http://www.isftic.mepsyd.es/w3/recursos/primaria/matematicas/porcentajes/contenidos/unidad2.html> ),

**Sheet 2**

(<http://www.isftic.mepsyd.es/w3/recursos/primaria/matematicas/porcentajes/contenidos/unidad3.html> ) and

Watch this **video** ([http://www.mathplayground.com/howto\\_perfracdec.html](http://www.mathplayground.com/howto_perfracdec.html))

Do the exercises “Cálculo mental” and “Test” on the following **website**:

(<http://www.isftic.mepsyd.es/w3/recursos/primaria/matematicas/porcentajes/menuu2.html> )

Do the exercises “Tú mandas”, “Cuadrolos”, “%Coloreado” and “Test” on the following **website**:

(<http://www.isftic.mepsyd.es/w3/recursos/primaria/matematicas/porcentajes/menuu3.html> )

**Do the following tests to check what you have learnt about percentages.**

**Test 1: Very easy**

Solutions:

**Test 2: A bit harder**

Solutions:

**Test 3: Only for confident students**

**Solutions:**

**Test 4: Another test.**

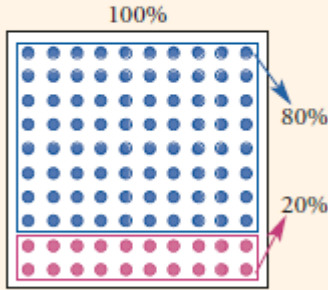
**Solutions:**



**REMEMBER THIS:**

**Disminución porcentual**

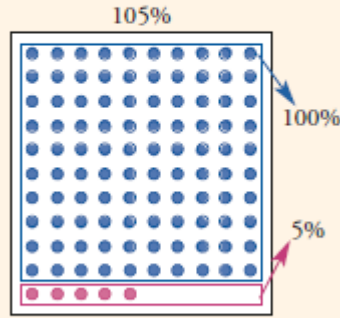
Disminuir una cantidad en un 20% es lo mismo que calcular el  $100\% - 20\% = 80\%$  de la cantidad.



$$80\% = \frac{80}{100} = 0,8$$

**Aumento porcentual**

Aumentar una cantidad en un 5% es lo mismo que calcular el  $100\% + 5\% = 105\%$  de la cantidad.



$$105\% = \frac{105}{100} = 1,05$$

**5. COMPOUND PROPORTION.**

A proportion is compound if we have more than two proportional magnitudes.

**Example:** A farmer needs 600 kg of fodder to feed 40 cows during 8 days. How many days could he feed 20 cows with 1,500 kg of fodder?

For 40 cows:

Weight \_\_\_\_\_ (Direct Proportional) \_\_\_\_\_ Days  
600kg \_\_\_\_\_ 8 days

1500 kg ..... ... x days  $\Rightarrow x = \frac{1500 \cdot 8}{600} = 20$  days for 40 cows.

With 1500kg for 20 cows:

Cows \_\_\_\_\_ (Inverse Proportional) \_\_\_\_\_ Days  
40 cows ..... 20 days

20 cows ..... y days  $\Rightarrow y = \frac{40 \cdot 20}{20} = 40$  days for 20 cows with 1500 kg

Solution: 40 days for 20 cows with 1500 kg.

**EXERCISE 1. Page 95, exercise 18. Copy the instructions.**

**EXERCISE 2. Page 95, exercise 19. Copy the instructions.**

**EXERCISE 3. Page 95. Exercise 20. Copy the instructions.**

## **6. SIMPLE INTEREST.**

El interés es el dinero que produce una cantidad depositada en una entidad financiera.

El interés simple es aquel que no se acumula al capital depositado para generar nuevos intereses.

**USEFUL RULE:** To calculate the interest you can use this formula:

$$I = c \cdot r \cdot t$$

Where  $c$  = capital

$r$  = percentage interest

$t$  = time in years.

**Example:** We deposit € 750 with 3 % simple interest for 4 years. What will our capital be when this time is finished?

$$I = c \cdot r \cdot t$$

$$I = 750 \cdot 0,03 \cdot 4 = 90 \text{ €}$$

So the final capital is:

$$C = c + I \Rightarrow C = 750 + 90 = 840 \text{ €}$$

**EXERCISE 1. Page 96, exercise 42. Copy the instructions.**

**EXERCISE 2. Page 96, exercise 43. Copy the instructions.**