

Problemas Porcentajes simples (soluciones)

- 1.- In a school with 600 students, 50% are in Primary Education, 35% are in Secondary Education, and 15% are in Baccalaureate. Find the number of students at each educational level.
- 2.- A factory produces 1,500 vehicles per month. 25% are vans, 60% are cars, and the rest are minivans. Find the number of units produced for each type of vehicle.
- 3.- The results of a music survey (*encuesta*) conducted at a high school with 1,200 students have been published: 30% prefer techno, 25% pop, 40% rock, and the rest reggaeton. Calculate the number of students who prefer each musical genre.
- 4.- A family buys a refrigerator for €840. They pay 30% of the price to take it home, and the rest in six monthly payments. What is the amount of each payment?
- 5.- 26% of the books in a library are novels, 18% are poetry books, 10% are history books, 22% are science books, and the rest are encyclopedias. What percentage are encyclopedias? How many books of each type are there if the library has 52,000 books?
- 6.- There are 60% women in a meeting. If there are 12 women, calculate the total number of people who attended the meeting.
- 7.- A cleaning company has 63 employees on the night shift (*turno*), which represents 35% of the workforce. How many employees make up the total workforce?
- 8.- A water tank is 93% full. If 14,000 liters are added, it will be full. What is the tank's capacity?
- 9.- In a forest fire, 40% of the trees burned. If 4,800 trees remained unburned after the fire, how many trees were there at the beginning?
- 10.- A screw-making machine produces 3% defective parts. If 51 defective screws (*tornillos*) were discarded today, how many parts did the machine produce?
- 11.- Anastasio's notebook originally had 80 pages, but he's used 40% and torn out 25%. How many pages are left? What percentage of the total do they represent?
- 12.- A town had 3,000 inhabitants last year, and this year it has 3,150. By what percentage has the population increased?
- 13.- In a soccer match, the home team had 60% possession of the ball. The first half had 2 minutes of extra time and the second half 3 minutes. How long did the visiting team have possession of the ball?
- 14.- Luisa has 18 word-problems to do for homework. She has already done more than 65% but less than 70%. How many problems does she have left to solve?
- 15.- When a couple agrees to purchase an apartment, they agree to pay a 5% deposit, a second 65% payment upon signing the deeds (*firma de escrituras*), and the remainder in 120 monthly installments of 700€ each. What is the total price of the apartment?

Problemas de variaciones porcentuales

- 16.-** A bus ticket used to cost 1,40€. If its price has increased by 15% this year, how much does a ticket cost now? [\[vídeo\]](#)
- 17.-** The price of gasoline has risen by 4%. If it used to cost 1,25€ a liter, what is its current price?
- 18.-** A store is offering a 15% discount. If a TV is marked at 900€, what discount will they give me? How much will I pay for the TV?
- 19.-** I bought a bike for €250. If I want to earn 32%, how much should I sell it for?
- 20.-** A family's two-month electricity bill is 65 euros, not including the 21% VAT (IVA). How much is VAT? What is the final bill?
- 21.-** I pick up my car from the garage and the bill comes to 80 euros. I get a 7% discount for paying cash. How much did they discount me? How much did I pay?
- 22.-** A watch was worth 32 euros, but the watchmaker reduced its price, and I ended up paying 28,80 euros. What percentage did they reduce its price?
- 23.-** A pair of sneakers with a 30% discount cost me 42€. How much did they cost before the discount?
- 24.-** After a 12% discount, an item costs €13.20. How much did it cost before the discount? [\[vídeo\]](#)
- 25.-** Calculate the pre-tax price of a cooking robot (Tax is 16%). The retail price (*precio de venta*) is \$290. [\[vídeo\]](#)
- 26.-** In a store where everything is on sale with a -15% discount, I bought a pair of pants for €102. What was the price before the sale?
- 27.-** The price of bread has gone up by 10% today. If a loaf cost me 0,77€, how much was it worth yesterday?
- 28.-** A customer paid 375 euros for a washing machine. It was on sale with a 20% discount. What was the price before the discount? How much did they discount?
- 29.-** The value of my shares (*acciones*), after rising 5%, is €2.100. What was their value before the increase?
- 30.-** Last year, there were 72 students at my school who played football, but this year there are 108. What has been the percentage increase?
- 31.-** We've encountered the following offers in various supermarkets. Reasonably decide which one is most interesting to the consumer: a) Buy two, get three. b) Buy three, get four. c) Half price on the second unit. [\[vídeo\]](#)
- 32.-** On the Madrid-Zaragoza route on the AVE (High Speed Train), if the train arrives more than 12% late, you will receive a refund (*devolución*). If the estimated journey time is 1 hour 50 minutes and today it took 2 hours 5 minutes, will you be entitled to a refund?
- 33.-** A cookie package on sale advertises 25% more cookies for the same price. The old packages weighed 1 kg, and the current package with the sale weighs 1,20 kg. Is this advertisement true?
- 34.-** Roberto and Andrés buy a shirt for each one, both at the same price. Roberto gets a 12% discount, while Andrés only gets 8%. That way, one pays 1,40€ more than the other. What was the price of the shirts without discount?
- 35.-** If a number increases by 10%, it is 42 units larger than if it decreases by 5%. What is that number?

Problemas de porcentajes encadenados

36.- The price of a suit is €360. During the sales, an initial 30% discount was applied, followed by a further 20% discount. What is the final price?

37.- The price of a car is 11.400€. When I bought it, I received a 22% discount, but then I had to pay a 17% registration tax. What was the final price?

38.- I bought solar panels to heat my water. The price is marked at 3.850€. Since I bought directly from the factory, they gave me a 40% discount, but later I had to pay 21% VAT. How much did I pay for the solar panels?

39.- In a department store, they reduced the price of a coat by 20% during the initial sales, and then added another 20% discount to that price during the second sales. What percentage of the original price has the coat been reduced after those discounts?

40.- An item which was worth 50 euros had the following price changes: first it goes up 30%, then it goes down 15%, then it goes down 25% again, and finally it goes up 10%. What is its final price? What percentage has it changed from the initial price?

41.- The price of a tablet was €520. First, it went up 10%, then another 25%. Finally, it went down 30%. **[vídeo]**

a) What is the final price?

b) What is the total rate of change?

c) What percentage did it increase or decrease?

42.- If I've read 45 pages, which represents 60% of one half of a book, what percentage of the book do I have left to read? How many pages are they?

43.- The price of gasoline rose 20% last month. This month, however, it fell 20%. After these two changes... will the price be higher, lower, or the same as two months ago? If it is not the same, calculate the % change. **[vídeo]**

44.- The second sales have finally arrived. The jacket that I adore "only" costs 56€. If the first sales were 30% off, and the second is 20% off (off the already reduced price). What was the price before both sales? **[vídeo]**

45.- Amazon advertises a 25% discount, but then it charges 20% for shipping on the bill.

a) How much will we pay for an item that costs 30 euros (before changes)?

b) How much did it cost, if we paid 36 euros after all?

46.- There are presidential elections in San Marino next year. 80% of its inhabitants can vote (children cannot). This year, the percentage who voted was 95% of the possible voters, this means that 2.000 people did not vote. What is the population of San Marino? **[vídeo]**

(Todo mi reconocimiento y agradecimiento a la página web de referencia y ayuda
<https://selectividad.intergranada.com/>)

Solutions:

1. 300 students are in primary school, 210 are in secondary school and 90 de high school
2. 375 vans, 900 cars y 225 minivans.
3. 360 techno, 300 pop, 480 rock and 60 reggaeton
4. 98 € per month
5. Encyclopedias are 24%. In the library, there are 13,520 novels, 9,360 poetry books, 5,200 history books, 11,440 science books and 12,480 are encyclopedias
6. 20 people
7. 180 employees
8. 200.000 liters.
9. 8.000 trees
10. 1.700 screws
11. 28 pages. b) 35 %
12. The population rose 5 %
13. 38 minutes
14. 6
15. 280.000 €
16. This year, the ticket costs 1,61 €
17. 1,30 €/l
18. They'll deduct 135€ from my price. I will pay 765€ for the TV.
19. I must sell the bike for €330VAT.: 13,65 €.
20. Final price: 78,65 €
21. Discount: 5,6 €. Final price: 74,4 €
22. They reduced a 10 % its price
23. The shoes cost €60 before the sales
24. 15 €
25. \$250
26. 120 €
27. 70 cents
28. 468,75 €; 93,75 €
29. 2.000 €
30. 50 % increase
31. a) pay: 66,67%, saves: 33,33% b) pay: 75%, saves: 25% c) pay: 75%, saves: 25 %
32. Yes
33. No, it should weigh 1,25 kg
34. The shirt cost 35 €.
35. The number is 280
36. 201,60 €
37. 10.403,64 €
38. 2.725,80 €
39. I paid 64%, so I save a 36%.
40. Both options are equal
41. a) 500,5€ b) 0.9625 c) it decreased 3,75%
42. a) 70% b) 105 pages
43. It's lower. It was reduced by 4%
44. 100 €
45. a) 27 €; b) 40 €
46. 50000