

Reverse Percentages

For each question, you must draw two circles and both the forward and inverse scale factors between them.

1. After a pay rise of 6%, a security guard earns £8.48 per hour. How much did they earn before the rise?
2. After a pay cut of 4%, a postman earns £11 per hour. How much did they earn before the cut?
3. In a sale, everything is reduced by 15%. The price of a dress before the sale was £45. What is the sale price?
4. A portable audio unit is sold for £52.80, giving the shop a profit of 20%. Find the cost to the shop of the unit
5. The price of a house is reduced by 15% to £153000. What was the original price of the house?
6. A vase is bought for £23.50, which includes VAT at 17.5%. How much would the vase be if you bought it in an airport (and you were travelling to a non-EC country (in other words with no VAT))
7. A dress is reduced in a 20% off sale. Lucy buys the dress and saves herself £5. How much did the dress cost originally?
8. The value of my antique coin collection has risen 10% to £25.30 over the last year. How much was it worth twelve months ago?
9. A baby is born with a weight of 2.6kg. After 1 month it weighs 4.1kg. By what percentage has it increased?
10. Every month, the prices in shops increase: this is called inflation. The average UK inflation per month is 1.4%. At the moment, my monthly purchase of 40 Jaffa cakes costs £9.60
 - a) How much will 40 Jaffa cakes cost in two months' time?
 - b) How much did they cost two months ago?
11. A train ticket increases in price by 12% due to demand for seats. Tom buys the ticket and has to pay £6 more than the original price. How much did Tom pay?
12. A rare stamp showing the Queen Mother is worth £81 after an increase in value of 35% which is caused by her passing away. What was its value before her death?
13. I buy a beautiful trombone in a "65% off" clearance sale for a mere £77. By how much has the trombone been reduced?
14. When Alfie was ten years old he was 130cm tall. He is now 143cm tall. By what percentage has his height increased?
15. I buy some shoes and then sell them on for £55.90 at a profit of 7.5%. How much did I pay for the shoes in the first place?
16. The time it takes me to run home increases by 15% when it's wet. This means that I run for 3 minutes longer when it's wet. How long does it take me to run home when it is dry?
17. The young tree in my garden is growing at an impressive rate. It has increased in height by 189% over the last year, and now measures 72.25 cm. How much has it grown in the last year?

18. After a pay rise of 25%, a pilot earns £250.00 per day.
 - a. How much did he earn before the rise?
 - b. The airline make some cost cuts, and decide to reduce the pilot's new pay back down to what it was before. What percentage decrease is this?
 - c. What can you say about the percentage decrease that reverses a 25% increase?

19. In a warehouse clearance, shoes are being sold at 40% reduction. A pair of shoes cost £9.30 after the reduction.
 - a. How much were the shoes before the reduction?
 - b. What is the percentage increase from the reduced price to the original price?
 - c. What can you say about the percentage increase that reverses a 40% decrease?

20. A stolen CD player goes for 45% of its value on the black market, at £220. What does it sell for in the High Street?

21. The plant in my living room is currently 60cm tall and it is growing at a rate of 4% per week. How tall it was 2 weeks ago?

22. The population of Africa is growing by 7% each year. There are currently 78 million people in Africa.
 - a. How many people will there be next year?
 - b. How many people were there last year?
 - c. How many people will there be 2 years time?
 - d. How many people will there be in 100 years time?

Percentages – Homework

1. I think of a number, and increase it by 38%. I now have 103.5. What was my number?
2. I think of another number, decrease it by 64%. I now have 164.16. What was my number?
3. I have £3400 in a bank account which pays 6% interest p.a. How much **did** I have:
 - a. last year
 - b. 4 years ago
4. I buy some shoes and then sell them on for £48 at a profit of 20%. How much did I pay for the shoes in the first place?
5. A shirt is sold for £33 at a profit of 10%. Find the original cost to the shop.
6. A chest of draws is priced at £54 in a "10% off everything" sale. How much does the chest usually cost?