

Reverse Percentage



Use the diagram to find the missing original amount, then answer without a diagram.

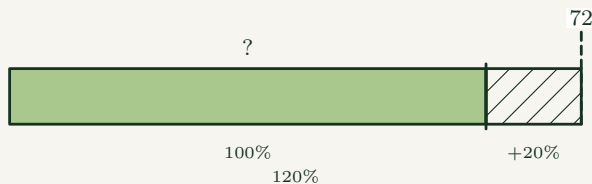
Name _____

Date _____

Show your method

To reverse an increase, divide by $(1 + \text{the rate as a decimal})$. To reverse a decrease, divide by $(1 - \text{the rate as a decimal})$.

Worked example The original price increased by 20% to become \$72. Find the original price.



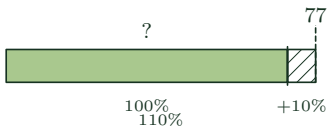
Multiplier: $1 + 0.2 = 1.2$

Divide: $72 \div 1.2 = 60$

So the original price was \$60.

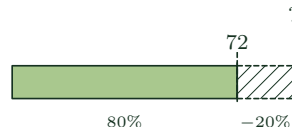
1. Find the missing original amount marked ?.

Solution: $77 \div 1.1 = 70$



2. Find the missing original amount marked ?.

Solution: $72 \div 0.8 = 90$



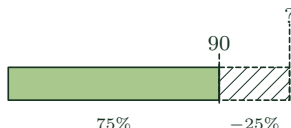
3. Find the missing original amount marked ?.

Solution: $75 \div 1.25 = 60$



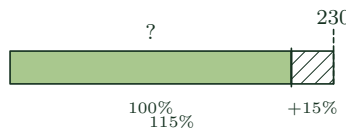
4. Find the missing original amount marked ?.

Solution: $90 \div 0.75 = 120$



5. Find the missing original amount marked ?.

Solution: $230 \div 1.15 = 200$



6. Find the missing original amount marked ?.

Solution: $36 \div 0.9 = 40$



7. After a 25% increase, an amount is 100. Find the original amount.

Solution: $100 \div 1.25 = 80$

8. After a 10% decrease, an amount is 135. Find the original amount.

Solution: $135 \div 0.9 = 150$

9. After a 75% increase, an amount is 56. Find the original amount.

Solution: $56 \div 1.75 = 32$

Reverse Percentage (continued)

Apply the method to money and real-world contexts.



Name _____

Date _____

10. After a 15% decrease, an amount is 51. Find the original amount.

Solution: $51 \div 0.85 = 60$

11. After a 20% increase, an amount is 54. Find the original amount.

Solution: $54 \div 1.2 = 45$

12. A value decreased by 12% to 220. Find the original value.

Solution: $220 \div 0.88 = 250$

13. A \$44 sale price follows a 20% discount. Find the original price.

Solution: $44 \div 0.8 = \$55$

14. A \$51.75 total includes 15% GST. Find the pre-GST price.

Solution: $51.75 \div 1.15 = \$45$

15. A population of 380 is 5% lower than the original. Find the original population.

Solution: $380 \div 0.95 = 400$

16. A \$182 price is 30% higher than the original. Find the original price.

Solution: $182 \div 1.3 = \$140$

17. A car's value fell 8% to \$14 720. Find its original value.

Solution: $14\,720 \div 0.92 = \$16\,000$

18. A price increased 10%, then decreased 10%, to become \$49.50. Find the original price.

Solution: $49.50 \div 0.99 = \$50$