

Increasing and Decreasing by a Percentage



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

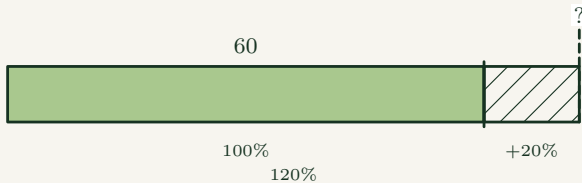
Name _____

Date _____

Show your method

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

Worked example Increase 60 by 20%.



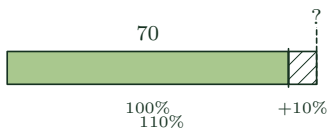
Multiplier: $1 + 0.2 = 1.2$

Multiply: $60 \times 1.2 = 72$

So 60 increased by 20% is 72.

1. Find the missing new amount marked ?.

Solution: $70 \times 1.1 = 77$



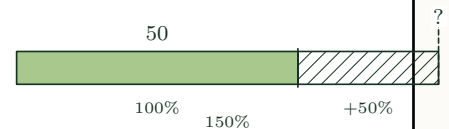
2. Find the missing new amount marked ?.

Solution: $90 \times 0.8 = 72$



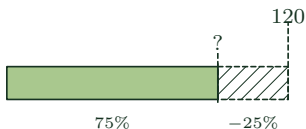
3. Find the missing new amount marked ?.

Solution: $50 \times 1.5 = 75$



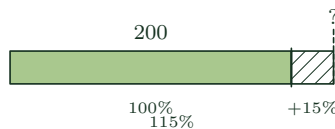
4. Find the missing new amount marked ?.

Solution: $120 \times 0.75 = 90$



5. Find the missing new amount marked ?.

Solution: $200 \times 1.15 = 230$



6. Find the missing new amount marked ?.

Solution: $40 \times 0.9 = 36$



7. Increase 80 by 25%.

Solution: 100

8. Decrease 150 by 10%.

Solution: 135

9. Increase 32 by 75%.

Solution: 56

Increasing and Decreasing by a Percentage (continued)



Solutions: apply the method to money contexts.

Name _____

Date _____

10. Decrease 60 by 15%.

Solution: 51

11. Increase 45 by 20%.

Solution: 54

12. Decrease 250 by 12%.

Solution: 220

13. A \$55 item is discounted by 20%. Find the sale price.

Solution: \$44

14. A \$45 bill has 15% GST added. Find the new total.

Solution: \$51.75

15. A population of 400 falls by 5%. Find the new population.

Solution: 380

16. A \$140 tool is marked up by 30%. Find the new price.

Solution: \$182

17. A car worth \$16 000 depreciates by 8% in one year. Find its new value.

Solution: \$14 720

18. A \$50 item is increased by 10%, then the new price is decreased by 10%. Find the final price.

Solution: \$49.50