

Percent of Increase and Decrease

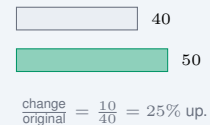
Name: _____ Date: _____ Score: _____ / 18

Quick Review and Helpful Hints

A percent change compares the *amount of change* to the *original* amount: percent change = $\frac{\text{change}}{\text{original}} \times 100\%$. If the new value is larger it is a percent *increase*; if smaller, a percent *decrease*. Always divide by the original (starting) amount, not the new one.

▷ **Example:** A price rises from \$40 to \$50. Find the percent increase.

Work: The change is $50 - 40 = 10$. Divide by the original: $\frac{10}{40} = 0.25$, then multiply by 100%. **★ Answer:** 25% increase



◆ Practice Problems

Find each percent of increase or decrease.

- | | | | |
|--------------|-------|--------------|-------|
| 1. 20 → 25 | _____ | 8. 90 → 72 | _____ |
| 2. 50 → 40 | _____ | 9. 25 → 30 | _____ |
| 3. 80 → 100 | _____ | 10. 120 → 90 | _____ |
| 4. 60 → 45 | _____ | 11. 40 → 60 | _____ |
| 5. 10 → 15 | _____ | 12. 75 → 60 | _____ |
| 6. 200 → 150 | _____ | 13. 8 → 10 | _____ |
| 7. 30 → 36 | _____ | 14. 50 → 35 | _____ |

◆ Word Problems

15. A shirt's price went from \$25 to \$30. What is the percent increase? _____
16. A town's population grew from 800 to 1000. What is the percent increase? _____
17. A \$80 item is marked down to \$60. What is the percent decrease? _____
18. A person's weight dropped from 150 lb to 120 lb. What is the percent decrease? _____



Answer Keys

- | | | |
|-----------------|------------------|------------------|
| 1. 25% increase | 7. 20% increase | 13. 25% increase |
| 2. 20% decrease | 8. 20% decrease | 14. 30% decrease |
| 3. 25% increase | 9. 20% increase | 15. 20% increase |
| 4. 25% decrease | 10. 25% decrease | 16. 25% increase |
| 5. 50% increase | 11. 50% increase | 17. 25% decrease |
| 6. 25% decrease | 12. 20% decrease | 18. 20% decrease |

Step-by-Step Explanations

1. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The amount changes by $25 - 20 = 5$, an increase. Compare it to the original: $\frac{5}{20} = 0.25$, which is a 25% increase. So the final answer is 25% increase.

2. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The value drops by $50 - 40 = 10$. Divide by the original: $\frac{10}{50} = 0.20$, a 20% decrease. So the final answer is 20% decrease.

3. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The change is $100 - 80 = 20$ up. Over the original: $\frac{20}{80} = 0.25 = 25\%$ increase. So the final answer is 25% increase.

4. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The change is $60 - 45 = 15$ down. Over the original: $\frac{15}{60} = 0.25 = 25\%$ decrease. So the final answer is 25% decrease.

5. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The change is 5 up. Over the original: $\frac{5}{10} = 0.50 = 50\%$ increase. So the final answer is 50% increase.

6. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The change is 50 down. Over the original: $\frac{50}{200} = 0.25 = 25\%$ decrease. So the final answer is 25% decrease.

7. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The change is 6 up. Over the original: $\frac{6}{30} = 0.20 = 20\%$ increase. So the final answer is 20% increase.

8. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The change is 18 down. Over the original: $\frac{18}{90} = 0.20 = 20\%$ decrease. So the final answer is 20% decrease.

9. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The change is 5 up. Over the original: $\frac{5}{25} = 0.20 = 20\%$ increase. So the final answer is 20% increase.

10. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The change is 30 down. Over the original: $\frac{30}{120} = 0.25 = 25\%$ decrease. So the final answer is 25% decrease.

11. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The change is 20 up. Over the original: $\frac{20}{40} = 0.50 = 50\%$ increase. So the final answer is 50% increase.

12. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The change is 15 down. Over the original: $\frac{15}{75} = 0.20 = 20\%$ decrease. So the final answer is 20% decrease.

13. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The change is 2 up. Over the original: $\frac{2}{8} = 0.25 = 25\%$ increase. So the final answer is 25% increase.

14. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The change is 15 down. Over the original: $\frac{15}{50} = 0.30 = 30\%$ decrease. So the final answer is 30% decrease.

15. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The price went up by $30 - 25 = 5$. Over the original price: $\frac{5}{25} = 0.20 = 20\%$ increase. So the final answer is 20% increase.

16. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Growth is $1000 - 800 = 200$. Over the original population: $\frac{200}{800} = 0.25 = 25\%$ increase. So the final answer is 25% increase.

17. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The price dropped by $80 - 60 = 20$. Over the original: $\frac{20}{80} = 0.25 = 25\%$ decrease. So the final answer is 25% decrease.

18. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Weight fell by $150 - 120 = 30$. Over the original: $\frac{30}{150} = 0.20 = 20\%$ decrease. So the final answer is 20% decrease.



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