

Compound Interest

Name: _____ Date: _____ Score: _____ / 18

Quick Review and Helpful Hints

Compound interest earns interest on the interest already earned. For yearly compounding, the amount is $A = P(1 + r)^t$, where P is the principal, r is the rate (as a decimal), and t is the number of years. The interest earned is $A - P$.

▶ **Example:** Find the amount on \$100 at 10% for 2 years (compounded yearly). **Work:** $A = 100(1.10)^2 = 100(1.21)$.

★ **Answer:** \$121



Interest grows on interest.

Practice Problems

Find the amount (or interest, where asked).

- | | | | |
|------------------------|-------|--------------------------------------|-------|
| 1. \$100 at 10%, 1 yr | _____ | 8. \$1000 at 10%, 1 yr | _____ |
| 2. \$100 at 10%, 2 yr | _____ | 9. \$100 at 10%, 2 yr: interest only | _____ |
| 3. \$200 at 10%, 1 yr | _____ | 10. \$200 at 10%, 2 yr | _____ |
| 4. \$100 at 20%, 1 yr | _____ | 11. \$100 at 5%, 1 yr | _____ |
| 5. \$100 at 100%, 1 yr | _____ | 12. \$400 at 25%, 1 yr | _____ |
| 6. \$500 at 10%, 1 yr | _____ | 13. \$100 at 10%, 3 yr | _____ |
| 7. \$100 at 50%, 1 yr | _____ | 14. \$1000 at 100%, 1 yr | _____ |

Word Problems

15. \$1000 grows at 10% for 2 years (yearly). Find the final amount. _____
16. \$100 grows at 10% for 2 years. How much interest is earned? _____
17. \$500 grows at 20% for 1 year. Find the amount. _____
18. \$200 grows at 50% for 1 year. Find the amount. _____



Answer Keys

- | | | |
|---------------------------------------|--|---|
| 1. <input type="text" value="\$110"/> | 7. <input type="text" value="\$150"/> | 13. <input type="text" value="\$133.10"/> |
| 2. <input type="text" value="\$121"/> | 8. <input type="text" value="\$1100"/> | 14. <input type="text" value="\$2000"/> |
| 3. <input type="text" value="\$220"/> | 9. <input type="text" value="\$21"/> | 15. <input type="text" value="\$1210"/> |
| 4. <input type="text" value="\$120"/> | 10. <input type="text" value="\$242"/> | 16. <input type="text" value="\$21"/> |
| 5. <input type="text" value="\$200"/> | 11. <input type="text" value="\$105"/> | 17. <input type="text" value="\$600"/> |
| 6. <input type="text" value="\$550"/> | 12. <input type="text" value="\$500"/> | 18. <input type="text" value="\$300"/> |

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 $100(1.10) = \$110$. So the final answer is \$110.
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 $100(1.10)^2 = 100(1.21) = \121 . So the final answer is \$121.
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 $200(1.10) = \$220$. So the final answer is \$220.
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 $100(1.20) = \$120$. So the final answer is \$120.
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 $100(2.00) = \$200$. So the final answer is \$200.
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 $500(1.10) = \$550$. So the final answer is \$550.
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 $100(1.50) = \$150$. So the final answer is \$150.
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 $1000(1.10) = \$1100$. So the final answer is \$1100.
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 $121 - 100 = \$21$. So the final answer is \$21.
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 $200(1.21) = \$242$. So the final answer is \$242.
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 $100(1.05) = \$105$. So the final answer is \$105.
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 $400(1.25) = \$500$. So the final answer is \$500.
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 $100(1.10)^3 = 100(1.331) = \133.10 . So the final answer is \$133.10.
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 $1000(2.00) = \$2000$. So the final answer is \$2000.
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 $1000(1.10)^2 = 1000(1.21) = \1210 . So the final answer is \$1210.
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 $121 - 100 = \$21$. So the final answer is \$21.
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 $500(1.20) = \$600$. So the final answer is \$600.
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 $200(1.50) = \$300$. So the final answer is \$300.



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