

Domain and Range

Name: _____ Date: _____ Score: _____ / 18

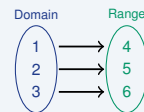
Quick Review and Helpful Hints

The *domain* is the set of all input (x) values; the *range* is the set of all output (y) values. For a list of ordered pairs, collect the x -values for the domain and the y -values for the range (drop repeats, list in order).

► **Example:** Find the domain and range of $\{(1, 4), (2, 5), (3, 6)\}$.

Work: Domain is the x -values $\{1, 2, 3\}$. Range is the y -values $\{4, 5, 6\}$.

★ **Answer:** $D = \{1, 2, 3\}$, $R = \{4, 5, 6\}$



$$D = \{1, 2, 3\}, R = \{4, 5, 6\}.$$

Practice Problems

Find the domain or range as directed.

- | | |
|--|--|
| <p>1. Domain of $\{(1, 2), (3, 4), (5, 6)\}$ _____</p> <p>2. Range of $\{(1, 2), (3, 4), (5, 6)\}$ _____</p> <p>3. Domain of $\{(0, 1), (2, 3), (4, 5)\}$ _____</p> <p>4. Range of $\{(0, 1), (2, 3), (4, 5)\}$ _____</p> <p>5. Domain of $\{(-1, 2), (0, 2), (1, 2)\}$ _____</p> <p>6. Range of $\{(-1, 2), (0, 2), (1, 2)\}$ _____</p> <p>7. Domain of $\{(5, 10), (6, 20)\}$ _____</p> | <p>8. Range of $\{(5, 10), (6, 20)\}$ _____</p> <p>9. Domain of $\{(7, 1), (8, 2), (9, 3)\}$ _____</p> <p>10. Range of $\{(7, 1), (8, 2), (9, 3)\}$ _____</p> <p>11. Domain of $\{(-3, 0), (-2, 1), (-1, 2)\}$ _____</p> <p>12. Range of $\{(-3, 0), (-2, 1), (-1, 2)\}$ _____</p> <p>13. Range of $y = x + 2$ for $x \in \{0, 1, 2\}$ _____</p> <p>14. Range of $y = 2x$ for $x \in \{1, 2, 3\}$ _____</p> |
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Word Problems

15. A function pairs the days {Mon, Tue, Wed} with temperatures. What is the domain? _____
16. The points $(1, 10), (2, 20), (3, 30)$ show sales. What is the range? _____
17. For $y = 3x$ with $x \in \{0, 1, 2\}$, list the range. _____
18. A tutoring table lists ordered pairs $\{(4, 4), (5, 5), (6, 6)\}$ for practice day and score. What is the domain of the relation? _____



Answer Keys

1. $\{1, 3, 5\}$

2. $\{2, 4, 6\}$

3. $\{0, 2, 4\}$

4. $\{1, 3, 5\}$

5. $\{-1, 0, 1\}$

6. $\{2\}$

7. $\{5, 6\}$

8. $\{10, 20\}$

9. $\{7, 8, 9\}$

10. $\{1, 2, 3\}$

11. $\{-3, -2, -1\}$

12. $\{0, 1, 2\}$

13. $\{2, 3, 4\}$

14. $\{2, 4, 6\}$

15. $\{\text{Mon, Tue, Wed}\}$

16. $\{10, 20, 30\}$

17. $\{0, 3, 6\}$

18. $\{4, 5, 6\}$

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 Collect the x -values: $\{1, 3, 5\}$. So the final answer is $\{1, 3, 5\}$.

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 Collect the y -values: $\{2, 4, 6\}$. So the final answer is $\{2, 4, 6\}$.

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 x -values are $\{0, 2, 4\}$. So the final answer is $\{0, 2, 4\}$.

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 y -values are $\{1, 3, 5\}$. So the final answer is $\{1, 3, 5\}$.

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 x -values are $\{-1, 0, 1\}$. So the final answer is $\{-1, 0, 1\}$.

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 All outputs are 2, so the range is $\{2\}$. So the final answer is $\{2\}$.

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 x -values are $\{5, 6\}$. So the final answer is $\{5, 6\}$.

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 y -values are $\{10, 20\}$. So the final answer is $\{10, 20\}$.

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 x -values are $\{7, 8, 9\}$. So the final answer is $\{7, 8, 9\}$.

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 y -values are $\{1, 2, 3\}$. So the final answer is $\{1, 2, 3\}$.

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 x -values are $\{-3, -2, -1\}$. So the final answer is $\{-3, -2, -1\}$.

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 y -values are $\{0, 1, 2\}$. So the final answer is $\{0, 1, 2\}$.

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 $0 + 2, 1 + 2, 2 + 2 = \{2, 3, 4\}$. So the final answer is $\{2, 3, 4\}$.

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 $2(1), 2(2), 2(3) = \{2, 4, 6\}$. So the final answer is $\{2, 4, 6\}$.

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 domain is the set of inputs: the three days. So the final answer is $\{\text{Mon, Tue, Wed}\}$.

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 The range is the set of outputs: $\{10, 20, 30\}$. So the final answer is $\{10, 20, 30\}$.

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 $3(0), 3(1), 3(2) = \{0, 3, 6\}$. So the final answer is $\{0, 3, 6\}$.

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 The x -values are $\{4, 5, 6\}$. So the final answer is $\{4, 5, 6\}$.



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