**Determine each relation if it is a function.**

|  |  |  |  |
| --- | --- | --- | --- |
| **1.** |  | **2.** |  |
|  |  |  |  |
| **3.** | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | |  |  |  |  |  |  | | **4.** | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | |  |  |  |  |  |  | |
|  |  |  |  |
| **5.** |  | **6.** |  |
|  |  |  |  |

**Use the Vertical Line Test to determine which of the following graphs describes as a function of** .

|  |  |  |  |
| --- | --- | --- | --- |
| **7.** | **5**  **4**  **3**  **2**  **1**  **0 1 2 3 4 5**  **-5 -4 -3 -2 -1**  **-1**  **-2**  **-3**  **-4**  **-5** | **8.** | **5**  **4**  **3**  **2**  **1**  **0 1 2 3 4 5**  **-5 -4 -3 -2 -1**  **-1**  **-2**  **-3**  **-4**  **-5** |
|  | **5**  **4**  **3**  **2**  **1**  **-5 -4 -3 -2 -1**  **0 1 2 3 4 5**  **-1**  **-2**  **-3**  **-4**  **-5** |  | **5**  **4**  **3**  **2**  **1**  **0 1 2 3 4 5**  **-5 -4 -3 -2 -1**  **-1**  **-2**  **-3**  **-4**  **-5** |
|  |  |  |  |

**Evaluate each function.**

|  |  |  |  |
| --- | --- | --- | --- |
| **9.** |  | **10.** |  |
|  |  |  |  |
| **11.** |  | **12.** |  |
|  |  |  |  |
| **13.** |  | **14.** |  |
|  |  |  |  |
| **15.** |  | **16.** |  |
|  |  |  |  |
| **17.** |  | **18.** |  |
|  |  |  |  |

**State the domain of each function. Write in interval notation.**

|  |  |  |  |
| --- | --- | --- | --- |
| **19.** |  | **20.** |  |
|  |  |  |  |
| **21.** |  | **22.** |  |
|  |  |  |  |
| **23.** |  | **24.** |  |
|  |  |  |  |

**Evaluate each function.**

|  |  |  |  |
| --- | --- | --- | --- |
| **25.** |  | **26.** |  |
|  |  |  |  |

**ANSWERS**

**Determine each relation if it is a function.**

|  |  |  |  |
| --- | --- | --- | --- |
| **1.** |  | **2.** |  |
|  | Each element of **HAS** unique output in  The relation is **A FUNCTION.**  It is **A ONE TO ONE FUNCTION.** |  | Each element of has **NOT** unique output in  The relation is **NOT A FUNCTION.** |
| **3.** | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | |  |  |  |  |  |  | | **4.** | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | |  |  |  |  |  |  | |
|  | Each input value **HAS** unique output.  The relation is **A FUNCTION.**  It is **A ONE TO ONE FUNCTION.** |  | The relation is **NOT A FUNCTION** because input 1 has two different outputs. |
| **5.** |  | **6.** |  |
|  | The relation is **NOT A FUNCTION** because input -1 has two different outputs. |  | Each input value **HAS** unique output.  So the relation is **A FUNCTION.** |

**Use the Vertical Line Test to determine which of the following graphs describes as a function of** .

|  |  |  |  |
| --- | --- | --- | --- |
| **7.** | **5**  **4**  **3**  **2**  **1**  **0 1 2 3 4 5**  **-5 -4 -3 -2 -1**  **-1**  **-2**  **-3**  **-4**  **-5** | **8.** | **5**  **4**  **3**  **2**  **1**  **0 1 2 3 4 5**  **-5 -4 -3 -2 -1**  **-1**  **-2**  **-3**  **-4**  **-5** |
|  | **5**  **4**  **3**  **2**  **1**  **-5 -4 -3 -2 -1**  **0 1 2 3 4 5**  **-1**  **-2**  **-3**  **-4**  **-5** |  | **5**  **4**  **3**  **2**  **1**  **0 1 2 3 4 5**  **-5 -4 -3 -2 -1**  **-1**  **-2**  **-3**  **-4**  **-5** |
|  | In the graph, vertical line crosses the graph more than once, so graph does not represent as a function of . |  | In the graph, every vertical line crosses the graph at most once, so graph does represent as a function of . |

**Evaluate each function.**

|  |  |  |  |
| --- | --- | --- | --- |
| **9.** |  | **10.** |  |
|  |  |  |  |
| **11.** |  | **12.** |  |
|  |  |  |  |
| **13.** |  | **14.** |  |
|  |  |  |  |
| **15.** |  | **16.** |  |
|  |  |  |  |
| **17.** |  | **18.** |  |
|  |  |  |  |

**State the domain of each function. Write in interval notation.**

|  |  |  |  |
| --- | --- | --- | --- |
| **19.** |  | **20.** |  |
|  |  |  |  |
| **21.** |  | **22.** |  |
|  |  |  |  |
| **23.** |  | **24.** |  |
|  |  |  |  |

**Evaluate each function.**

|  |  |  |  |
| --- | --- | --- | --- |
| **25.** |  | **26.** |  |
|  |  |  |  |