**Find the inverse of each relation.**

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

**Use a horizontal line test to determine whether of the graph of each function is a one-to-one function.**

|  |  |  |  |
| --- | --- | --- | --- |
| **5.** |  | **6.** |  |
|  |  |  |  |
| **7.** |  | **8.** |  |
|  |  |  |  |

**Find an equation for the inverse of each of the one to one function.**

|  |  |  |  |
| --- | --- | --- | --- |
| **9.** |  | **10.** |  |
|  |  |  |  |

**Use the graph of each function to graph its inverse function.**

|  |  |  |
| --- | --- | --- |
| **13.** |  |  |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | |  |  |  |  |  | | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | |  |  |  |  |  | |
| **14.** |  |  |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | |  |  |  |  |  | | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | |  |  |  |  |  | |

**Determine whether each function has an inverse function. If it does, find the inverse function and state any restrictions on its domain.**

|  |  |  |
| --- | --- | --- |
| **15.** |  |  |
|  |  |  |
| **16.** |  |  |
|  |  |  |

**Show algebraically that**  **and are inverse functions.**

|  |  |  |  |
| --- | --- | --- | --- |
| **17.** |  | **18.** |  |
|  |  |  |  |
| **19.** |  | **20.** |  |
|  |  |  |  |

**ANSWERS**

**Find the inverse of each relation.**

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

**Use a horizontal line test to determine whether of the graph of each function is a one-to-one function.**

|  |  |  |  |
| --- | --- | --- | --- |
| **5.** |  | **6.** |  |
|  |  |  |  |
| **7.** |  | **8.** |  |
|  |  |  |  |

**Find an equation for the inverse of each of the one to one function.**

|  |  |  |  |
| --- | --- | --- | --- |
| **9.** |  | **10.** |  |
|  |  |  |  |

**Use the graph of each function to graph its inverse function.**

|  |  |  |
| --- | --- | --- |
| **13.** |  |  |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | |  |  |  |  |  | | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | |  |  |  |  |  | |
| **14.** |  |  |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | |  |  |  |  |  | | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | |  |  |  |  |  | |

**Determine whether each function has an inverse function. If it does, find the inverse function and state any restrictions on its domain.**

|  |  |  |
| --- | --- | --- |
| **15.** |  |  |
|  | Therefore the inverse of   is a function. |  |
| **16.** |  |  |
|  | Therefore the inverse of is a function. |  |

**Show algebraically that**  **and are inverse functions.**

|  |  |  |  |
| --- | --- | --- | --- |
| **17.** |  | **18.** |  |
|  |  |  |  |
| **19.** |  | **20.** |  |
|  |  |  |  |