**Multiple choices**

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| --- | --- |
| **1.** | **Describe the transformations necessary to transform the graph of** $ f\left(x\right)=\sqrt{x}$ $\rightarrow g\left(x\right)=-3\sqrt{x}-1$. $ $ |
|  | **a.)** expanded vertically by a factor of 3, reflected across the x-axis translated down 1 unit. | **b.)** expanded vertically by a factor of 3, reflected across the y-axis translated down 1 unit. |
|  | **c.)** expanded horizontally by a factor of 3, reflected across the x-axis translated down 1 unit.  | **d.)** expanded vertically by a factor of 1, reflected across the x-axis translated down 3 units. |

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| **2.** | **Transform the function** $ f\left(x\right)=\left|x\right|$ **- expand horizontally by a factor of 2, translate right 1 unit translate up 5 units. The resulting function as an equation is:**  |
|  | **a.)** $ y=\left|2x-1\right|+5$ | **b.)** $y=\left|\frac{1}{2}x-1\right|+5$  |
|  | **c.)** $y=\left|\frac{1}{2}x+1\right|+5$ | **d.)** $y=\left|\frac{1}{2}x-1\right|-5$  |

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| **3.** | **Describe the transformations necessary to transform the graph of** $ f\left(x\right)=\left⟦x\right⟧\rightarrow $ $g\left(x\right)=\left⟦x\right⟧+3$ $ $ |
|  | **a.)** Translated 3 units down | **b.)** Translated 3 units left |
|  | **c.)** Translated 3 units up | **d.)** Translated 3 units right |

**4. Graph piecewise function.**

|  |  |  |
| --- | --- | --- |
|  | $$f\left(x\right)=\left\{\begin{array}{c}x^{3} if x<-1\\1 if -1<x<1\\x^{2}+2 if x\geq 1\end{array}\right.$$ |  |

**5. Use the graph of parent function to graph the function. Find the domain and the range of the new function.**

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|  | $$h\left(x\right)=-\left(x+1\right)^{3}-1$$ |  |
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**ANSWERS**

**Multiple choices**

|  |  |
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| **1.** | **Describe the transformations necessary to transform the graph of** $\left(x\right)=\sqrt{x}$ $\rightarrow g\left(x\right)=-3\sqrt{x}-1$.  |
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**4. Graph piecewise function.**

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|  | $$h\left(x\right)=-\left(x+1\right)^{3}-1$$ |  |
|  | $h\left(x\right)=-\left(x+1\right)^{3}-1 $**Parent function** $f\left(x\right)=x^{3}$**Transformation:**Reflected in the x axis Translated 1 unit upTranslated 1 unit right$$D=\left(-\infty ,\infty \right)$$$$R=\left(-\infty ,\infty \right)$$ |  |