Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_HWK Transformations of Basic Functions 3 Hour\_\_\_\_\_\_

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A graph of a function  Description automatically generatedThis is $f(x) = x^{3}$

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x | -2 | -1 | 0 | 1 | 2 |
| f(x) | -8 | -1 | 0 | 1 | 8 |

 | Sketch a$\left(x\right)=2x^{3}-16$ and complete the table below.

|  |
| --- |
| State point of inflection  |
| State y intercept |
| State x intercepts |
| State two additional points |
| State the transformations on f(x) that a(x) represents |

 | Sketch b$\left(x\right)=5\left(x-1\right)^{3}+2$and complete the table below.

|  |
| --- |
| State point of inflection  |
| State y intercept |
| State x intercepts |
| State two additional points |
| State the transformations on f(x) that b(x) represents |

 |
| Sketch c$\left(x\right)=-1\left(x-8\right)^{3}$ and complete the table to the right |

|  |
| --- |
| State point of inflection  |
| State y intercept |
| State x intercepts |
| State two additional points |
| State the transformations on f(x) that c(x) represents |

 | Answer these questions with a(x) b(x) or c(x) as they apply.Which of the functions is a vertical compression?Which of the functions is a vertical reflection?Which of the functions is a vertical stretch? |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A graph of a line graph  Description automatically generatedThis is $f(x) =\sqrt{x}$

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x | -4 | -1 | 0 | 1 | 4 |
| f(x) | und | und | 0 | 1 | 2 |

 | Sketch a$\left(x\right)=2\sqrt{x}-4$ and complete the table below.

|  |
| --- |
| State extreme point |
| State y intercept |
| State x intercepts |
| State two additional points |
| State the transformations on f(x) that a(x) represents |

 | Sketch b$\left(x\right)=\frac{1}{2}\sqrt{x+8}+6$and complete the table below.

|  |
| --- |
| State extreme point |
| State y intercept |
| State x intercepts |
| State two additional points |
| State the transformations on f(x) that b(x) represents |

 |
| Sketch c$\left(x\right)=2\sqrt{3-x}+5$ and complete the table to the right |

|  |
| --- |
| State extreme point  |
| State y intercept |
| State x intercepts |
| State two additional points |
| State the transformations on f(x) that c(x) represents |

 | Answer these questions with a(x) b(x) or c(x) as they apply.Which of the functions is a vertical compression?Which of the functions is a vertical reflection?Which of the functions is a vertical stretch?Which of the functions is a horizontal reflection? |