Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Graphing Linear Piecewise Functions

To graph a linear piecewise function, you need to create a table of values. For a linear piecewise function, you will graph each piece separately, which means you will need multiple table of values. Remember that, for a line, you only need to know two points in order to graph—the starting point and the ending point.



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| 1. Graph the piecewise function.

$$f\left(x\right)=\left\{\begin{array}{c}3x+2, -3\leq x<2\\-2x+13, 2\leq x<6\\-x+16, 6\leq x\leq 8\end{array}\right.$$

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| Piece 1$$f\left(x\right)=3x+2, -3\leq x<2$$ |
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| --- | --- | --- | --- |
|  | $$x$$ | $$y=3x+2=$$ | *y* |
|  | Start $x$$$-3$$ | $$y=3\left(-3\right)+2=$$ | $$-7$$ |
|  | End $x$$$2$$ | $$y=3(2)+2=$$ | $$8$$ |

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| Piece 2$$f\left(x\right)=-2x+13, 2\leq x<6$$ | Piece 3$$f\left(x\right)=-x+16, 6\leq x\leq 8$$ |
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| --- | --- | --- | --- |
|  | $$x$$ | $$y=-2x+13=$$ | *y* |
|  | Start $x$$$2$$ | $$y=-2\left(2\right)+13=$$ | $$9$$ |
|  | End $x$$$6$$ | $$y=-2\left(6\right)+13=$$ | $$1$$ |

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|  |  |  |  |
| --- | --- | --- | --- |
|  | $$x$$ | $$y=-x+16=$$ | *y* |
|  | Start $x$$$6$$ | $$y=-\left(6\right)+16=$$ | $$10$$ |
|  | End $x$$$8$$ | $$y=-\left(8\right)+16=$$ | $$8$$ |

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| 1. Graph the piecewise function.

$$f\left(x\right)=\left\{\begin{array}{c}2x+1, -8<x\leq -4\\x+6, -4<x\leq 0\\3x+4, 0<x\leq 5\end{array}\right.$$ |  |
|

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| --- |
| Piece 1$$f\left(x\right)= $$ |
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|  |  |  |  |
| --- | --- | --- | --- |
|  | $$x$$ | $$y= $$ | $$y$$ |
|  | Start $x$ | $$y=$$ |  |
|  | End $x$ | $$y=$$ |  |

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|  |  |
| --- | --- |
| Piece 2$$f\left(x\right)= $$ | Piece 3$$f\left(x\right)= $$ |
|

|  |  |  |  |
| --- | --- | --- | --- |
|  | $$x$$ | $$y= $$ | $$y$$ |
|  | Start $x$ | $$y=$$ |  |
|  | End $x$ | $$y=$$ |  |

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|  |  |  |  |
| --- | --- | --- | --- |
|  | $$x$$ | $$y= $$ | $$y$$ |
|  | Start $x$ | $$y=$$ |  |
|  | End $x$ | $$y=$$ |  |

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| 1. Graph the piecewise function.

$$f\left(x\right)=\left\{\begin{array}{c}-3x+4, -2\leq x<1\\-x+4, 1\leq x<6\\ x-8, 6\leq x<10\end{array}\right.$$ |  |
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| --- |
| Piece 1$$f\left(x\right)= $$ |
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|  |  |  |  |
| --- | --- | --- | --- |
|  | $$x$$ | $$y= $$ | $$y$$ |
|  |  | $$y=$$ |  |
|  |  | $$y=$$ |  |

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| --- | --- |
| Piece 2$$f\left(x\right)= $$ | Piece 3$$f\left(x\right)= $$ |
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|  |  |  |  |
| --- | --- | --- | --- |
|  | $$x$$ | $$y= $$ | $$y$$ |
|  |  | $$y=$$ |  |
|  |  | $$y=$$ |  |

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|  |  |  |  |
| --- | --- | --- | --- |
|  | $$x$$ | $$y= $$ | $$y$$ |
|  |  | $$y=$$ |  |
|  |  | $$y=$$ |  |

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| 1. Graph the piecewise function.

$$f\left(x\right)=\left\{\begin{array}{c}2, 0\leq x<3\\4, 3\leq x<6\\ 6, 6\leq x<9\end{array}\right.$$ |  |
|

|  |
| --- |
| Piece 1$$f\left(x\right)= $$ |
|

|  |  |  |  |
| --- | --- | --- | --- |
|  | $$x$$ | $$y= $$ | $$y$$ |
|  |  | $$y=$$ |  |
|  |  | $$y=$$ |  |

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| --- | --- |
| Piece 2$$f\left(x\right)= $$ | Piece 3$$f\left(x\right)= $$ |
|

|  |  |  |  |
| --- | --- | --- | --- |
|  | $$x$$ | $$y= $$ | $$y$$ |
|  |  | $$y=$$ |  |
|  |  | $$y=$$ |  |

 |

|  |  |  |  |
| --- | --- | --- | --- |
|  | $$x$$ | $$y= $$ | $$y$$ |
|  |  | $$y=$$ |  |
|  |  | $$y=$$ |  |

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| 1. Graph the piecewise function.

$$f\left(x\right)=\left\{\begin{array}{c}-5, -6\leq x<-2\\-1, -2\leq x<2\\ 3, 2\leq x<6\\ 7, 6\leq x<10\end{array}\right.$$ |  |