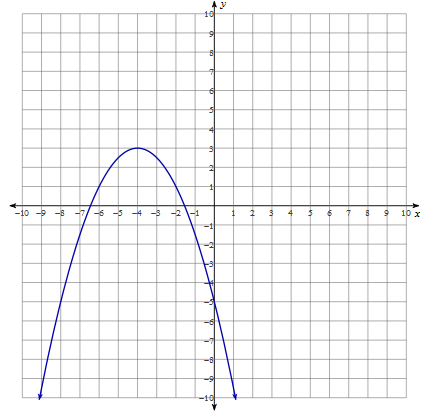
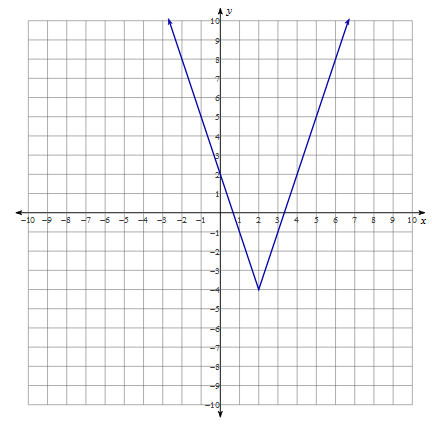
Function Toolkit #1

Use the Function Toolkit to sketch a graph of each of the following functions on the coordinate axes provided. Show all work, calculations, and tables where appropriate. State the domain, range, vertex, x- and y-intercepts when requested.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mapping Rule: (x-4, -0.5y+3) | | | | |
| Base Function | |  | New Function | |
| -3 | 9 | -7 | -1.5 |
| -2 | 4 | -6 | 1 |
| -1 | 1 | -5 | 2.5 |
| 0 | 0 | -4 | 3 |
| 1 | 1 | -3 | 2.5 |
| 2 | 4 | -2 | 1 |
| 3 | 9 |  | -1 | -1.5 |

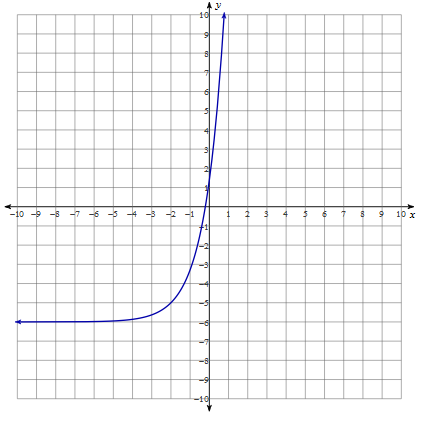
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Vertex  (-4,3) | x-int  (-6.5,0)  (-1.6) | y-int  (0,-5) | Domain | Range |



1. 

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| --- | --- | --- | --- | --- |
| Mapping Rule: (x+2, 3y-4) | | | | |
| Base Function | |  | New Function | |
| -3 | 3 | -1 | 5 |
| -2 | 2 | 0 | 2 |
| -1 | 1 | 1 | -1 |
| 0 | 0 | 2 | -4 |
| 1 | 1 | 3 | -1 |
| 2 | 2 | 4 | 2 |
| 3 | 3 |  | 5 | 5 |

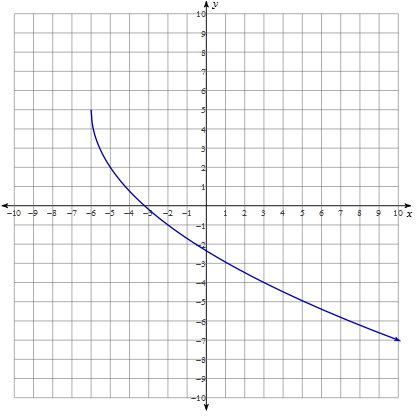
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| --- | --- | --- | --- |
| x-int  (2/3, 0)  (10/3, 0) | y-int  (0,2) | Domain | Range |





|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mapping Rule: (x-2, y-6) | | | | |
| Base Function | |  | New Function | |
| -2 | 0.14 | -4 | -5.86 |
| -1 | 0.37 | -3 | -5.63 |
| 0 | 1 | -2 | -5 |
| 1 | 2.72 | -1 | -3.28 |
| 2 | 7.39 | 0 | 1.39 |

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| --- | --- | --- | --- |
| x-int  (-0.2,0) | y-int  (0,1.39) | Domain | Range |

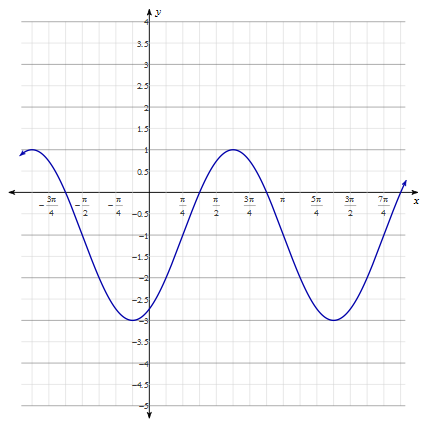
1. 

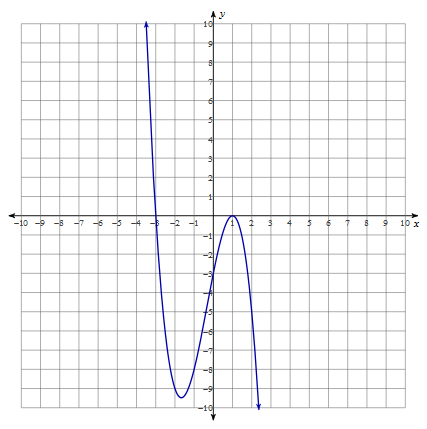
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mapping Rule: (x-6, -3y+5) | | | | |
| Base Function | |  | New Function | |
| 0 | 0 | -6 | 5 |
| 1 | 1 | -5 | 2 |
| 4 | 2 | -2 | -1 |
| 9 | 3 | 3 | -4 |
| 16 | 4 | 10 | -7 |

|  |  |  |  |
| --- | --- | --- | --- |
| x-int  (-3.2, 0) | y-int  (0, -2.3) | Domain | Range |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mapping Rule: (3/4x+,2y-1) | | | | |
| Base Function | |  | New Function | |
| 0 | 0 |  | -1 |
|  | 1 |  | 1 |
|  | 0 |  | -1 |
|  | -1 |  | -3 |
|  | 0 |  | -2 |

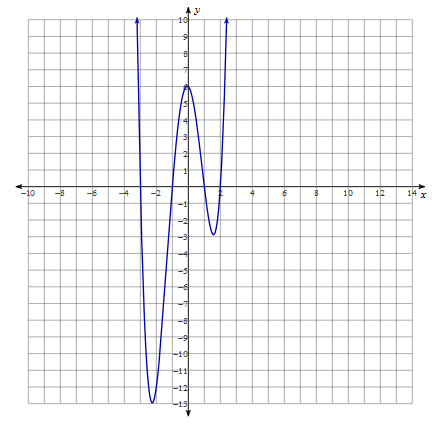
|  |  |  |  |
| --- | --- | --- | --- |
| x-int | y-int  (0,-2.73) | Domain | Range |

1. 

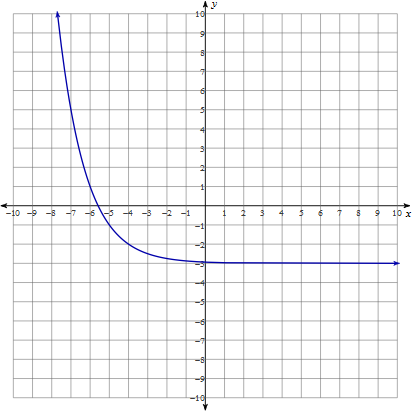
1. 

Factor to find all the x-intercepts.   
  


|  |  |  |  |
| --- | --- | --- | --- |
| x-int  (-3,0)  (1,0) | y-int  (0,-3) | Domain | Range |
| Other points:  (-2,-9), (-1,-8), (2,-5) | | | |

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| --- | --- | --- | --- |
| x-int  (-3, 0)  (-1,0)  (1, 0)  (2, 0) | y-int  (0, 6) | Domain | Range  ---------- |
| Other points:  (-2, -12) | | | |

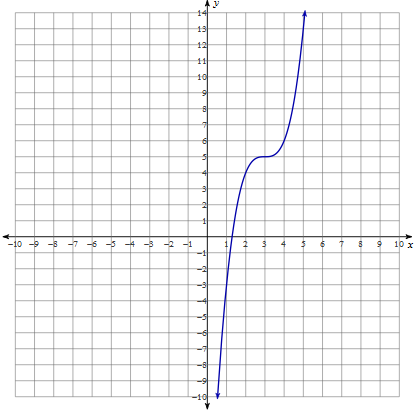
1. 

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mapping Rule: (x-4, y-3) | | | | |
| Base Function | |  | New Function | |
| -3 | 8 | -7 | 5 |
| -2 | 4 | -6 | 1 |
| -1 | 2 | -5 | -1 |
| 0 | 1 | -4 | -2 |
| 1 | 0.5 | -3 | -2.5 |
| 2 | 0.25 | -2 | -2.75 |

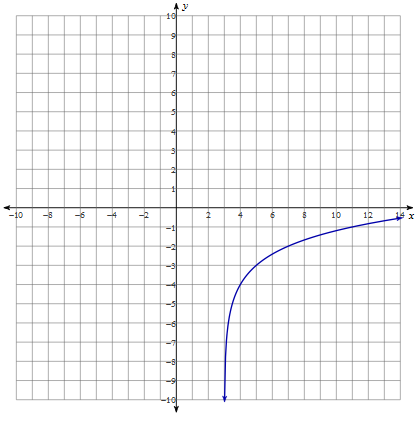
|  |  |  |  |
| --- | --- | --- | --- |
| x-int  (-5.58,0) | y-int  (0, -2.94) | Domain | Range |



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mapping Rule: (x+3, y+5) | | | | |
| Base Function | |  | New Function | |
| -2 | -8 | 1 | -3 |
| -1 | -1 | 2 | 4 |
| 0 | 0 | 3 | 5 |
| 1 | 1 | 4 | 6 |
| 2 | 8 | 5 | 13 |



|  |  |  |  |
| --- | --- | --- | --- |
| x-int  (1.29, 0) | y-int  (0, -22) | Domain | Range |

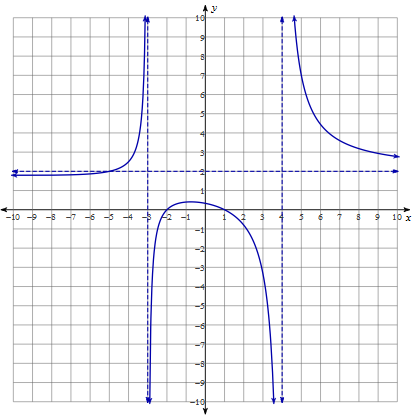
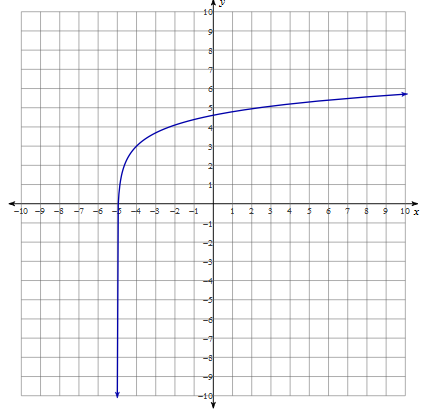




|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mapping Rule: (x+3, y-4) | | | | |
| Base Function | |  | New Function | |
| 0.25 | -2 | 3.25 | -6 |
| 0.5 | -1 | 3.5 | -5 |
| 1 | 0 | 4 | -4 |
| 2 | 1 | 5 | -3 |
| 4 | 2 | 7 | -2 |
| 8 | 3 | 11 | -1 |

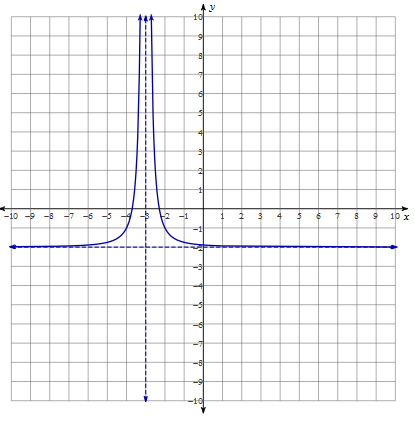
|  |  |  |  |
| --- | --- | --- | --- |
| x-int  (19,0) | y-int  no y-int | Domain | Range |

|  |  |  |  |
| --- | --- | --- | --- |
| x-int  (-2,0)  (1,0) | y-int  (0,1/3) | Domain | Range  ----------- |
| Other points:  (-5, 2), (-4, 2.5), (-1, 0.4), (2, -0.8), (3, -3.3),  (5, 7) | | | |

1.   
     
   Factored form: 
2. 

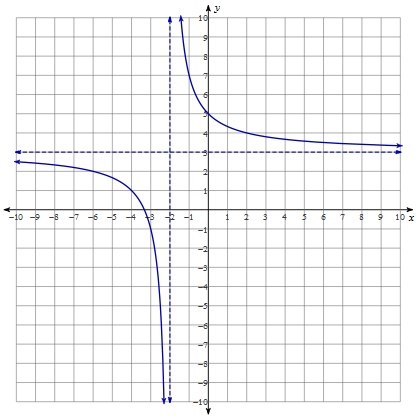
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mapping Rule: (x-5, y+3) | | | | |
| Base Function | |  | New Function | |
| 0.37 | -1 | -4.63 | 2 |
| 1 | 0 | -4 | 3 |
| 2.72 | 1 | -2.28 | 4 |
| 7.4 | 2 | 2.4 | 5 |

|  |  |  |  |
| --- | --- | --- | --- |
| x-int  (-4.9, 0) | y-int  (0, 4.6) | Domain | Range |

1. 

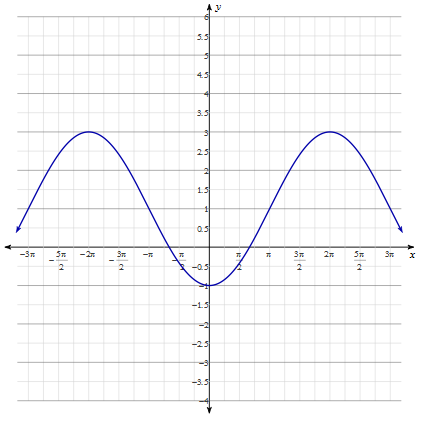
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mapping Rule: (x-3, y-2) | | | | |
| Base Function | |  | New Function | |
| -2 | 1/4 | -5 | -1.75 |
| -1 | 1 | -4 | -1 |
| 0 | ------ | -3 | --------- |
| 1 | 1 | -2 | -1 |
| 2 | 1/4 | -1 | -1.75 |

|  |  |  |  |
| --- | --- | --- | --- |
| x-int  (-2.3, 0)  (-3.7, 0) | y-int  (0,-1.9) | Domain | Range |

1. 

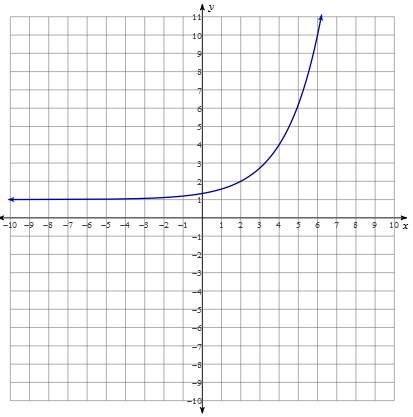
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mapping Rule: (x-2, 4y+3) | | | | |
| Base Function | |  | New Function | |
| -2 | -1/2 | -4 | 1 |
| -1 | -1 | -3 | -1 |
| 0 | ------- | -2 | ---------- |
| 1 | 1 | -1 | 7 |
| 2 | 1/2 | 0 | 5 |

|  |  |  |  |
| --- | --- | --- | --- |
| x-int  (-10/3, 0) | y-int  (0, 5) | Domain | Range |

1. 

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mapping Rule: (2x, -2y+1) | | | | |
| Base Function | |  | New Function | |
| 0 | 1 | 0 | -1 |
|  | 0 |  | 1 |
|  | -1 |  | 3 |
|  | 0 |  | 1 |
|  | 1 |  | -1 |

|  |  |  |  |
| --- | --- | --- | --- |
| x-int | y-int  (0, -1) | Domain | Range |

  
  
  
  
  
  
16. 

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mapping Rule: (2x+2, y+1) | | | | |
| Base Function | |  | New Function | |
| -2 | 1/9 | -2 | 10/9 |
| -1 | 1/3 | 0 | 4/3 |
| 0 | 1 | 2 | 2 |
| 1 | 3 | 4 | 4 |
| 2 | 9 | 6 | 10 |

|  |  |  |  |
| --- | --- | --- | --- |
| x-int  no x-int | y-int  (0, 4/3) | Domain | Range |