**Graph each function. State the domain, the vertex (min/max point), the range, the**

**x-intercepts, y-intercept and the axis of symmetry.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1.) *f(x)= -x2 + 4*   |  |  | | --- | --- | | x | y | |  |  | |  |  | |  |  | |  |  | |  |  | | Vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Max or min? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Direction of opening? \_\_\_\_\_\_\_\_\_\_\_\_\_\_  Wider or narrower than *y* = *x*2 ?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *x*-intercepts: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 2.) *h*(*x) =* -*x*2 – 2*x* + 8   |  |  | | --- | --- | | x | y | |  |  | |  |  | |  |  | |  |  | |  |  | | Vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Max or min? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Direction of opening? \_\_\_\_\_\_\_\_\_\_\_\_\_\_  Wider or narrower than *y* = *x*2 ?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Inputs: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Output: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *Roots*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 3.) *f(x)= x2 – 1*   |  |  | | --- | --- | | x | y | |  |  | |  |  | |  |  | |  |  | |  |  | | Vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Max or min? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Direction of opening? \_\_\_\_\_\_\_\_\_\_\_\_\_\_  Wider or narrower than *y* = *x*2 ?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Independent: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Dependent: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *Solutions*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Find the vertex of each parabola. Graph the function and find the requested information**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1.) *f(x)= x*2 – 2*x* – 3 *a* = \_\_\_\_, *b* = \_\_\_\_, *c* = \_\_\_\_   |  |  | | --- | --- | | x | y | |  |  | |  |  | |  |  | |  |  | |  |  | | Vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Max or min? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Direction of opening? \_\_\_\_\_\_\_\_\_\_\_\_\_\_  Wider or narrower than *y* = *x*2 ?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *zeros*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 2.) *y = -x*2 + *2x + 2 a* = \_\_\_\_, *b* = \_\_\_\_, *c* = \_\_\_\_   |  |  | | --- | --- | | x | y | |  |  | |  |  | |  |  | |  |  | |  |  | | Vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Max or min? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Direction of opening? \_\_\_\_\_\_\_\_\_\_\_\_\_\_  Wider or narrower than *y* = *x*2 ?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *x*-intercepts: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 3.) *g*(*x) = -2x*2 + *8x – 5 a* = \_\_\_\_, *b* = \_\_\_\_, *c* = \_\_\_\_   |  |  | | --- | --- | | x | y | |  |  | |  |  | |  |  | |  |  | |  |  | | Vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Max or min? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Direction of opening? \_\_\_\_\_\_\_\_\_\_\_\_\_\_  Wider or narrower than *y* = *x*2 ?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  x-values: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  f(x): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *solutions*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Using a graphing calculator find the domain and range of each**

|  |  |
| --- | --- |
| 4.)  Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 5.)  Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

|  |  |
| --- | --- |
| 6.) *g*(*x) = 3x*2 *–* *3x – 6*  Created by webMathematica  Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 7.) *h*(*x) = -2x*2 *+ 6x*  Created by webMathematica  Input: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Output: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Graph the function and find the requested information** | |
| 8.) *y = 2x*2 + *6x* *a* = \_\_\_\_, *b* = \_\_\_\_, *c* = \_\_\_\_ | Vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Max or min? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Direction of opening? \_\_\_\_\_\_\_\_   |  |  | | --- | --- | | x | y | |  |  | |  |  | |  |  | |  |  | |  |  |   Wider or narrower than  *y* = x2 ? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *Roots*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**State the domain and range of each:**

|  |  |  |
| --- | --- | --- |
| **9.)** *f*(*x) = x*2 *– x – 2*  Created by webMathematica  Independent Values: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Dependent Values: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | **10.)** *y = -x*2 *+ 9*  Created by webMathematica  Input Values: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Output Values: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
| **Graph the function and find the requested information** | | |
| 11.) *g*(*x) = -2x*2 + *8x – 5 a* = \_\_\_\_, *b* = \_\_\_\_, *c* = \_\_\_\_ | | Vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Max or min? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Direction of opening? \_\_\_\_\_\_\_\_\_\_\_\_\_\_  Wider or narrower than *y* = *x*2 ?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *solutions*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

|  |  |  |
| --- | --- | --- |
| 12.) *y = x*2 – *2x – 2 a* = \_\_\_\_, *b* = \_\_\_\_, *c* = \_\_\_\_ | Vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Max or min? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Direction of opening? \_\_\_\_\_\_\_\_\_\_\_\_\_\_  Wider or narrower than *y* = *x*2 ?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *solutions*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_  Exit Ticket – Complete and hand to me before the end of class.  13.) *g*(*x) =* 2*x*2 – 2*x* – 10 *a* = \_\_\_\_, *b* = \_\_\_\_, *c* = \_\_\_\_ | | Vertex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Max or min? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Direction of opening? \_\_\_\_\_\_\_\_\_\_\_\_\_\_  Wider or narrower than *y* = *x*2 ?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Input: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Output: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *solutions*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **x** |  |  |  |  |  |  |  |
| **y** |  |  |  |  |  |  |  |