Name:

Date:

School:

Facilitator:

**5.03 Vertex Form of Quadratic Functions**

**Identify the vertex and axis of symmetry for each function.**

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| 1. | *f*(*x*) = 3(*x* + 3)2 – 5  | Vertex: (, ) | Axis of Symmetry: *x* =  |
| 2. | *y* = -4(*x* – 7)2 + 3 | Vertex: (, ) | Axis of Symmetry: *x* =  |
| 3. | *y* = (*x* – 12)2 + 6 | Vertex: (, ) | Axis of Symmetry: *x* =  |
| 4. | *f*(*x*) = -6(*x* + 7)2 – 9 | Vertex: (, ) | Axis of Symmetry: *x* =  |
| 5. | $$f\left(x\right)=-2\left(x-\frac{3}{4}\right)+\frac{2}{5}$$ | Vertex: (, ) | Axis of Symmetry: *x* =  |

**For each function, identify the vertex and axis of symmetry. Then, choose the correct graph for each function from the choices below. You will not use all of the graphs.**

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| --- | --- | --- |
| (A) | (B) | (C) |
| (D) | (E) | (F) |

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| --- | --- | --- |
| (G) | (H) | (I) |

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| --- | --- | --- |
| 6. | *y* = -(*x* + 4)2 – 4  |  |
|  | Vertex: (, ) | Axis of Symmetry: *x* =  | Graph:  |
|  | **Show work for the second point here:** | Second Point: (, ) |
|  |  |

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| --- | --- | --- |
| 7. | *y* = 3(*x* – 1)2  |  |
|  | Vertex: (, ) | Axis of Symmetry: *x* =  | Graph:  |
|  | **Show work for the second point here:** | Second Point: (, ) |
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| --- | --- | --- |
| 8. | *f*(*x*) = 2(*x* + 3)2 – 4  |  |
|  | Vertex: (, ) | Axis of Symmetry: *x* =  | Graph:  |
|  | **Show work for the second point here:** | Second Point: (, ) |
|  |  |

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| 9. | *y* = 3(*x* + 2)2 – 2 |  |
|  | Vertex: (, ) | Axis of Symmetry: *x* =  | Graph:  |
|  | **Show work for the second point here:** | Second Point: (, ) |
|  |  |

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| --- | --- | --- |
| 10. | *f*(*x*) = -2(*x* – 1)2 – 4 |  |
|  | Vertex: (, ) | Axis of Symmetry: *x* =  | Graph:  |
|  | **Show work for the second point here:** | Second Point: (, ) |
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| **Sarah and Michael are checking their homework and comparing answers. They encounter the problem with the function *f*(*x*) = -2(*x* – 1)2 + 2. They both have the same vertex and axis of symmetry, but their graphs are different. Use this information to answer the questions that follow.** |
|  |  |  |  |  |  |
| **Sarah**Vertex: (1, 2)Axis of Symmetry: *x* = 1 | **Michael**Vertex: (1, 2)Axis of Symmetry: *x* = 1 |
|  |  |  |  |  |  |
| 11. | Simply looking at the equation, can you make a prediction who is correct or incorrect or where the issue might occur with the answer? |
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| 12. | Are there any issues with Sarah’s answer? Be detailed in your answer if you find any errors. |
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|  |  |  |  |  |  |
| 13. | Are there any issues with Michael’s answer? Be detailed in your answer if you find any errors. |
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| 14. | If Sarah and Michael are working in a group and the teacher will accept one paper, which paper should the pair turn-in for their grade? |
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