1) The following equations are all in vertex form: $y=a(x-h)^{2}+k$. Complete the table. ➇

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| Equation | Vertex | Step Pattern |
| $$y=(x-4)^{2}-3$$ |  |  |
| $$y=3(x-3)^{2}+2$$ |  |  |
| $$y=-0.5\left(x-1\right)^{2}+4$$ |  |  |
| $$y=20x^{2}+5$$ |  |  |

2) The following equations are all in factored form: $y=a(x-r)(x-s)$. Complete the table. ➇

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| Equation | Zeros (x-intercepts) | Step Pattern |
| $$y=(x-4)(x+3)$$ |  |  |
| $$y=2(x+7)(x+1)$$ |  |  |
| $$y=0.01(x-4)(x-5)$$ |  |  |
| $$y=500(x-27)(x+21)$$ |  |  |

3) For the following graphs, write down the equation in **factored form:** $y=a(x-r)(x-s)$

a) b)

Equation: $y=\\_\\_\\_\\_(x \\_\\_\\_\\_\\_\\_\\_\\_\\_)(x\_{\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_})$ Equation: : $y=\\_\\_\\_\\_(x \\_\\_\\_\\_\\_\\_\\_\\_\\_)(x\_{\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_})$

4) Sketch the following relations on the grids provided. ➄ each.



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| a) $y=(x-2)(x-8)$ |
| Zeros: |
| Axis of Symmetry: |
| Find the vertex: |



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| b) $y=3(x+4)(x+2)$ |
| Zeros: |
| Axis of Symmetry: |
| Find the vertex: |

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| c) $y=0.5(x+2)(x-4)$ |
| Zeros: |
| Axis of Symmetry: |
| Find the vertex: |



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| d) $y=-2(x+1)(x-3)$ |
| Zeros: |
| Axis of Symmetry: |
| Find the vertex: |

Bonus: Complete each sketch, and indicated properties.

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| **Equation** | **y = 2x2 - 8x + 7**  |
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| **Table of Values** |
| **x** | **y** |
| 0 | 7 |
| 1 | 1 |
| 2 | -1 |
| 3 | 1 |
| 4 | 7 |
| 5 | 17 |
| 6 | 31 |
|  |
| Fill in the following information about the parabola: |
| What is the Direction of Opening? \_\_\_\_\_\_\_\_\_\_\_\_ | What is the step pattern?\_\_\_\_, \_\_\_\_, \_\_\_\_ | What is the y-intercept?\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **Equation** | **y = -3x2 + 6x + 2**  |
|  |
| **Table of Values** |
| **x** | **y** |
| -2 | -22 |
| -1 | -7 |
| 0 | 2 |
| 1 | 5 |
| 2 | 2 |
| 3 | -7 |
| 4 | -22 |
|  |
| Fill in the following information about the parabola: |
| What is the Direction of Opening? \_\_\_\_\_\_\_\_\_\_\_\_ | What is the step pattern?\_\_\_\_, \_\_\_\_, \_\_\_\_ | What is the y-intercept?\_\_\_\_\_\_\_\_\_\_\_\_ |