**MVP Math 2 Unit 3 (Module 1) Review Sheet Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Part 1: Simplify each of the following**

|  |  |  |
| --- | --- | --- |
| 1. $\left(2y-1\right)\left(3y+4\right)$
 | 1. $2x\left(4x-1\right)-\left(x-3\right)$
 | 1. $m\left(m-2\right)+3m\left(m-4\right)$
 |
| 1. $\left(8h-1\right)-\left(8h+1\right)$
 | 1. $3\left(d-2\right)\left(3d+2\right)$
 | 1. $\left(7k+2\right)-(6k-2)$
 |
| 1. $\left(3r-1\right)\left(3r+1\right)$
 | 1. $\left(w-5\right)\left(w+5\right)$
 | 1. $\left(9t-11\right)-(8t-11)$
 |

**Part 2: Find the following for the provided functions. Round to the nearest hundredth if necessary.**

|  |  |
| --- | --- |
| 1. $f\left(x\right)=-5x^{2}-2x+8$
 | 1. $f\left(x\right)=(x-1)(3x+2)$
 |
| **Vertex:** | **Vertex:** |
| **Minimum or Maximum** | **Minimum or Maximum** |
| **Find** $f(-2)$**.** | **Find** $f\left(5\right).$ |
| **Find x if** $f\left(x\right)=5.$ | **Find x if** $f\left(x\right)=2.$ |

**Part 3: Application**

1. **Jason kicked a football on a projectory path that followed the model** $h\left(t\right)=-16t^{2}+40t+4$**, where** $h\left(t\right)$ **is the height of the ball in feet off of the ground and** $t$ **is the time in seconds.**
	1. **What is the maximum height of the football? \_\_\_\_\_\_\_\_**
	2. **When does the football reach its maximum height? \_\_\_\_\_\_\_\_**
	3. **From what height did the football start its parabolic path? \_\_\_\_\_\_\_\_**
	4. **What was the height of the football 2.5 seconds after it was kicked? \_\_\_\_\_\_\_\_**
	5. **At what time did the football reach a height of 20 feet on its way down? \_\_\_\_\_\_\_\_**
	6. **When did the football reach a height of 30 feet? \_\_\_\_\_\_\_\_**
	7. **When did the football collide with the ground? \_\_\_\_\_\_\_\_**

**Part 4: Tables. Complete each of the following for the provided tables. For your explanations use phrases such as 1st difference, 2nd difference, common difference, common ratio, etc. THEN WRITE THE EXPLICIT EQUATION.**

|  |  |
| --- | --- |
| **x** | **y** |
| **-2** | **12** |
| **-1** | **3** |
| **0** | **0** |
| **1** | **3** |
| **2** | **12** |
| **3** | **27** |

|  |  |
| --- | --- |
| **x** | **y** |
| **0** | **0** |
| **1** | **5** |
| **2** | **40** |
| **3** | **135** |
| **4** | **320** |
| **5** | **625** |

|  |  |
| --- | --- |
| **x** | **y** |
| **-3** | **-19** |
| **-2** | **-17** |
| **-1** | **-15** |
| **0** | **-13** |
| **1** | **-11** |
| **2** | **-9** |

**Pattern Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pattern Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pattern Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Why?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Why?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |
| --- | --- |
| **x** | **y** |
| **2** | **15** |
| **3** | **35** |
| **4** | **63** |
| **5** | **99** |
| **6** | **143** |
| **7** | **195** |

|  |  |
| --- | --- |
| **x** | **y** |
| **-3** | **-16** |
| **-2** | **-10** |
| **-1** | **-4** |
| **0** | **2** |
| **1** | **8** |
| **2** | **14** |

|  |  |
| --- | --- |
| **x** | **y** |
| **-5** | **-24** |
| **-4** | **-15** |
| **-3** | **-8** |
| **-2** | **-3** |
| **-1** | **0** |
| **0** | **1** |

**Pattern Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pattern Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pattern Type: Why?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Why?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**