**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_\_\_\_**

**Unit 1 Review**

|  |  |
| --- | --- |
| **Example of Explicit Rule** | **Example of Recursive Rule** |
|  |  |

|  |  |  |
| --- | --- | --- |
| **Linear Patterns** | **Exponential Patterns** | **Quadratic Patterns** |
| **Equation for:** | **Equation for:** | **Equation for:** |
| **Table for:** | **Table for:**  | **Table for:** |
| **Graph of:** | **Graph of:** | **Graph of:** |

**Graphing Functions and Creating Tables**

**For each function make a table of at least 6 values, graph the function, and identify if it is linear, exponential, or quadratic.**

1. ****

****

1. ****

****

1. ****

****

**Maximizing the size of a pen or corral with a fence**

This problem is similar to MVP 1.4.

Bubba has 160 feet of fence and he wants to make the biggest possible rectangular corral for his horse.

1. Sketch several possible rectangles that Bubba could make.
2. Let the width of the corral be *x*. Fill in the table below and then sketch a graph of the values relating width and area.



|  |  |  |
| --- | --- | --- |
| Width of the corral (in feet) | Length of the corral (in feet) | Area of the corral (in feet²)  |
|   |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

1. Write both a recursive and explicit equation that models the area in terms of the width.

**Domain and Range of a Function**

Use appropriate symbols to denote the domain and range of the functions below.

****

Domain: Domain: Domain: Domain: Domain:

Range: Range: Range: Range: Range:

**Average Rate of Change of a Function**

Finding the rate of change on a given interval, such as [2, 4] means use *x* = 2 and *x* = 4. Consider the two functions below. Find the rate of change over the intervals [0, 4] and [$-4, 0$].





**Falling Object Problem**

A climber jumps from a climbing wall into a pool of water. The function that gives the height of the climber after *t* seconds is $h\left(t\right)=-16t^{2}+75.$

1. Find *h*(0) and tell what it means.
2. Find *h*(1), *h*(1.5), and *h*(2).

1. When does the climber hit the water?
2. Using *h*(*t*), find the average rate of change over the intervals [0, 1] and [1, 2].
3. Sketch a graph of the problem.

**Algebra Review**

**Distributive Property:** Use the distributive property to simplify

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| $$2(3x+6)$$ | $$10(5m-5)$$ | $$2x(x+6)$$ | $$x^{2}(x-5)$$ | $$4m(-m-4)$$ |

**Evaluating Functions:** Evaluate each function at the point given

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| $$Find f\left(0\right)for $$$$f\left(x\right)=x^{2}+3$$ | $$Find f\left(-1\right)for $$$$f\left(x\right)=x^{2}-x$$ | $$Find f\left(2\right)for $$$$f\left(x\right)=2x^{2}-x+2$$ | $$Find f\left(10\right)for $$$$f\left(x\right)=2x(x-5)$$ | $$Find f\left(-5\right)for $$$$f\left(x\right)=x^{3}-x^{2}-x$$ |

**Adding and Subtracting Binomials:** Add or subtract the binomials

|  |  |  |  |
| --- | --- | --- | --- |
| $$\left(2x+3\right)+(4x+5)$$ | $$\left(2x^{2}+10x\right)-(2x^{2}-x)$$ | $$\left(16x+48\right)-(20x+50)$$ | $$\left(6x^{2}-10\right)+(-2x^{2}-2)$$ |

**Multiply Binomials:** Use the Distributive Property to multiply the binomials

|  |  |  |  |
| --- | --- | --- | --- |
| $$\left(x+2\right)(x+3)$$ | $$\left(x+5\right)(x-5)$$ | $$\left(x^{2}+3\right)(x^{2}-4)$$ | $$2\left(x+10\right)(x-5)$$ |

**Slope of a Line**

Use the graphs to find the slope of the lines below.

Find the slope of a line given two points that are on that line.

|  |
| --- |
| **Slope Formula** |
|  |

Given the two points, find the slope of the line that contains the points.

|  |  |  |  |
| --- | --- | --- | --- |
| $$\left(10, 5\right), (6, 2)$$ | $$\left(-3, -3\right), (4, 2)$$ | $$\left(2, 2\right), (-4, -2)$$ | $$\left(5, 1\right), (2, -1)$$ |

Give the definetion and an example.

|  |  |
| --- | --- |
| **Continuous Function** | **Discrete Function** |
|  |  |

**Finding the Area and Perimeter of Polygons** (Adding and Multiplying Binomials)

Find the Area and Perimeter of each polygon.

|  |  |
| --- | --- |
| $$x+3$$ $x$Area:\_\_\_\_\_\_\_\_\_\_\_\_\_ Perimeter: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | $$(x+4)$$  $(2x+3)$Area:\_\_\_\_\_\_\_\_\_\_\_\_\_ Perimeter: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  $2x$  $x+3$ $x+2$  $6x$Area:\_\_\_\_\_\_\_\_\_\_\_\_\_ Perimeter: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | $$2x^{2}+2x$$ $x^{2}$Area:\_\_\_\_\_\_\_\_\_\_\_\_\_ Perimeter: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |