

## Packet 1: Introduction to Linear Functions

Dear Parents/Guardians,

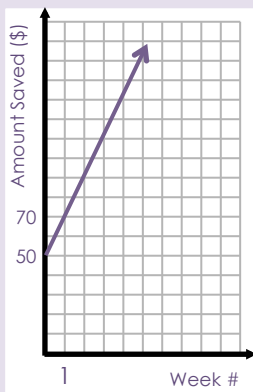
**Functions:** Packet 1 introduces the domain of functions. Students explore different situations using tables, graphs, equations, and verbal descriptions.

### Relating Tables, Graphs, Equations, and Words

Students explore real world situations, representing them as tables, graphs, equations, and in words. They will answer questions using the different representations.

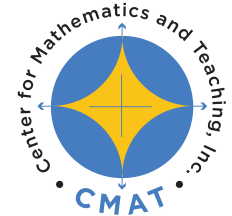
Example: Chris already has \$50 in his savings account. He saves an additional \$20 a week.

Week # (x)	Amount saved (y)
0	50
1	70
2	90
3	110
4	130
5	150
6	180



In words:  
Chris has saved \$50 and every week saves an additional \$20.

As an equation:  
 $y = 50 + x(20)$



## FUNCTIONS PACKET 1

**By the end of the packet, your student should know...**

- How to solve real world situations using tables, graphs and equations Lessons 1.1 and 1.3
- How to describe geometric and number patterns using tables, graphs and verbal descriptions Lesson 1.2
- How to use equations, tables and graphs to determine the best buy of items Lesson 1.3

### Additional Resources

For definitions and additional notes please refer to section 1.5.

### Exploring Geometric Patterns

Students explore "toothpick patterns," predicting how they will grow in order to describe the sequence.

Step # →	Step 1	Step 2	Step 3	Step 4 (build, then sketch below)
Number of Toothpicks →	 6	 9	 12	 15

Students may discover that it is helpful to think about the pattern as having a triangle (3 toothpicks) plus 3 more for each step. This leads right into the rule, "3 times the step number plus 3, or  $3n + 3$ ."

Students describe the geometric pattern using tables, graphs and equations. (Please see above for different representations.)

### Best Buy

Students determine better buys based on price points using graphs, tables and equations.

Students can compare prices at 20 apples or use the price per apple to determine that Apple Annie's is the better buy.

Apple Annie's	
# of apples	Cost (\$)
4	2.00
8	4.00
12	6.00
16	8.00
20	10.00
Price per apple: \$0.50 Cost = 0.50 (#apples) $y = 0.5x$ ★	

Core 'n More	
# of apples	Cost (\$)
5	2.80
10	5.60
15	8.40
20	11.20
25	14.00
Price per apple: \$0.56 Cost = 0.56 (#apples) $y = 0.56x$	