**GameMaker – Coding Sheet # 2 – Movement Commands**

**Movement and Position Functions**

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| **Function** | **Purpose** | **Example** |
| x | Stores the x position of the object in the room | objHero.x |
| y | Stores the y position of the object in the room | objEnemy.y |
| direction | Sets the direction an object will move in degrees: right =0°, up = 90°, left = 180°, down = 270° | direction += 5; (rotates 5 degrees clockwise) |
| speed | How many pixels an object will move each step (Each frame or # per second) | speed = 4; |
| friction | How much the object‘s speed will slow down each step. It will stop when it hits 0. | friction = .1; |
| gravity | When set, GameMaker will exert a constant force in the gravity direction, which affects its speed. (this is tricky) | gravity = 1; |
| hspeed | horizontal speed (movement on the x axis)  positive values are right, negative are left | hspeed = -1; (will move at a speed of 1 to left) |
| vspeed | vertical speed (movement on the y axis)  positive values are down, negative are up | vspeed = 2; (will move at a speed of 2 down) |
| xstart, ystart | Stores the starting x and y positions of an object. Helpful for resetting a game |  |
| motion\_add | Adds speed in a given direction | motion\_add(direction, .1) |
| motion\_set | Sets a new speed and direction | motion\_set(0, 2); |
| move\_towards\_point | tells an object to move towards an (x, y) position in the room at a given speed | move\_towards\_point(objHero.x, objHero.y, 2) |
| point\_direction | Sets the direction of an object, given 2 (x,y) positions (start, end) | direction = point\_direction(x, y, hero.x, hero.y); |

**Movement Skills to Master**

1. Move an object left, right up or down on the screen, or any combination (aka diagonally)
2. Increase or decrease the speed with which an object moves.
3. Change the direction an object moves (360 degrees)
4. Make an object “chase” another