

Mission 12 Assignment	Name:
Pre-Mission Preparation	
While programming the missions, you have encountered mistakes, errors, and bugs. What are some strategies you use to fix problems and not get frustrated?	<p>Answers will vary. Possible answers may include:</p> <ul style="list-style-type: none"> • Keeping track of errors and referring to the chart when something goes wrong. • Getting help from a partner or the “rubber duck method” to explain code and uncover errors. • Doing only a few lines of code at a time and testing frequently. • Using the debugger. • Looking at previous code.
Mission 12 Checks	
Objective #1 What does an accelerometer measure?	The force of acceleration in three directions: x, y and z
What are the possible values it can return?	Possible values are integers from -32767 to +32768
How many values does it return?	It returns three values: x, y and z
Objective #2 What are the principal axes used for navigation?	X = pitch Y = roll Z = yaw
To convert data to an angle, what module do you need to import, and what function will you use from it?	Import math Math.asin & math.pi
Objective #3 In the code, what constants are used instead of BTN-0 and BTN-1.	LEFT = BTN-0 RIGHT = BTN-1
How did you find driving the CodeBot with two buttons? Was it easy or hard?	Answers will vary
Objective #4 How do you visually represent the pitch data?	With a bar graph
Give an example of a cascaded assignment:	bars_left = bars_right = “
Objective #5 When is an escape sequence used?	When you want to insert a numeric character-code into a string. The \x escape sequence lets you insert a character code using a base-16, or hex, number
What is the escape sequence for “degrees”?	\xB0

<p>Objective #6 What changes to the get_pitch() function did you make to also get the roll?</p>	<p>Use two parameters, one of them a default parameter for offset. Use "axis" instead of pitch</p>
<p>Objective #7 What changes to the drive_bot() function did you make so the CodeBot is autonomous?</p>	<p>Use two parameters: pitch and roll Replace the if buttons.is_pressed with if statements for pitch and roll. Change the calculations for left wheel power and right wheel power to adjust automatically according to a target.</p>
<p>Objective #8 Describe the crash algorithm:</p>	<p>Define a variable for a crash countdown. If the pitch or the roll is more than 45, start the crash sequence. Repeat 20 times: set the left and right wheel power to -SPEED_LIMIT. This will back up the CodeBot.</p>
<p>Post-Mission Reflection</p>	
<p>Many electronic devices have an accelerometer, like your cell phone. Name another device that might have an accelerometer, and how does it use the data?</p>	<p>Answers will vary</p>
<p>How did you exhibit a growth mindset during this mission?</p>	<p>Answers will vary</p>