

For all code on this page assume you have the following available:

---

```
motorL    CON 12
motorR    CON 13
piezo     CON 15
```

#### Subroutines

FORWARD

```
PIVOT_LEFT    ' one twitch of a pivot to the left
PIVOT_RIGHT   ' one twitch of a pivot to the right
SPIN_LEFT     ' one twitch of a spin to the left
SPIN_RIGHT    ' one twitch of a spin to the right
```

```
myCounter VAR Word
```

---

**Please state assumptions as necessary. Example:**

**- FOR counter = 1 to 50 ' 50 is enough to make my bot backup 1 tile**

1. Assuming your robot was perfect, write the "PIVOT\_LEFT" subroutine

PIVOT\_LEFT:

---

---

RETURN

2. List the code necessary to make your robot drive in a square. It should stop after completing the square. Remember to state any necessary assumptions as a comment.

3. Circle all bugs found in the following code and write the correction

```
' {$STAMP BS2}
' {$PBASIC 2.5}

motorL CON 12
motorR CON 13

myCounter VAR Word
loopCounter VAR Word

FOR loopCounter = 1 TO 4
  FOR myCounter = 1 TO 50
    GOSUB FWD
    FOR myCounter2 = 1 TO 30
      GOSUB SPIN_LEFT
    NEXT
  LOOP
QUIT

FORWARD:
  PULSOUT motorL, 900
  PULSOUT motorR, 600
  PAUSE 20
RETURN

SPIN_LEFT:
  PULSOUT motorL, 600
  PULSOUT motorR, 600
  PAUSE 20
RETURN
```

4. In the box on the right, sketch the path the following code would cause the robot to drive:  
(assume logical behavior for subroutines: ex. RIGHT\_90 = 90 degree turn to the right)

```
direction VAR Word
counter VAR Word

direction = 1

FOR counter = 1 TO 6
  GOSUB forward_1_tile
  IF direction = 3 THEN
    GOSUB turn_90_right
    direction = 1
  ELSEIF direction = 2 THEN
    GOSUB turn_90_right
    direction = 3
  ELSEIF direction = 1 THEN
    GOSUB turn_90_left
    direction = 2
  ENDIF
NEXT
```

