

## Correction séance 1 programmation robot traceur

1) Augmente la vitesse pour tourner à 80%. Que constates-tu ?

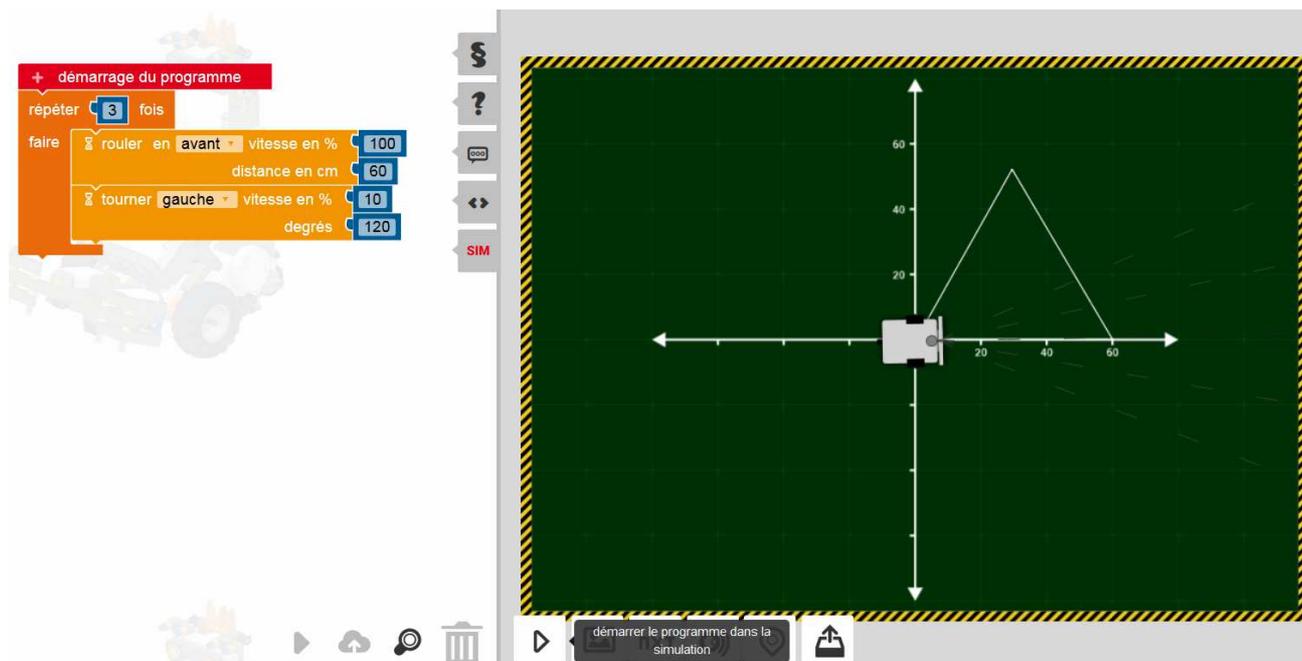
Si on augmente la vitesse pour tourner, l'angle n'est pas respecté en raison des glissements dus à l'inertie du robot

The screenshot shows a programming environment with a code block on the left and a simulation window on the right. The code block is a 'démarrage du programme' block followed by a 'répéter 4 fois' block. Inside the loop, there are four blocks: 'rouler en avant' (vitesse en %: 100, distance en cm: 50), 'tourner gauche' (vitesse en %: 100, degrés: 90), 'rouler en avant' (vitesse en %: 100, distance en cm: 50), and 'tourner gauche' (vitesse en %: 100, degrés: 90). The simulation window shows a robot starting at the origin (0,0) on a coordinate system. The robot moves forward 50cm, then turns left 90 degrees. The resulting path is a rectangle with a width of 50cm and a height of 50cm. The axes are labeled with 20, 40, and 60. The simulation window has a 'SIM' button and a 'démarrer le programme dans la simulation' button.

2) Tracer un rectangle de 40cm x 60cm avec une boucle dans le programme.

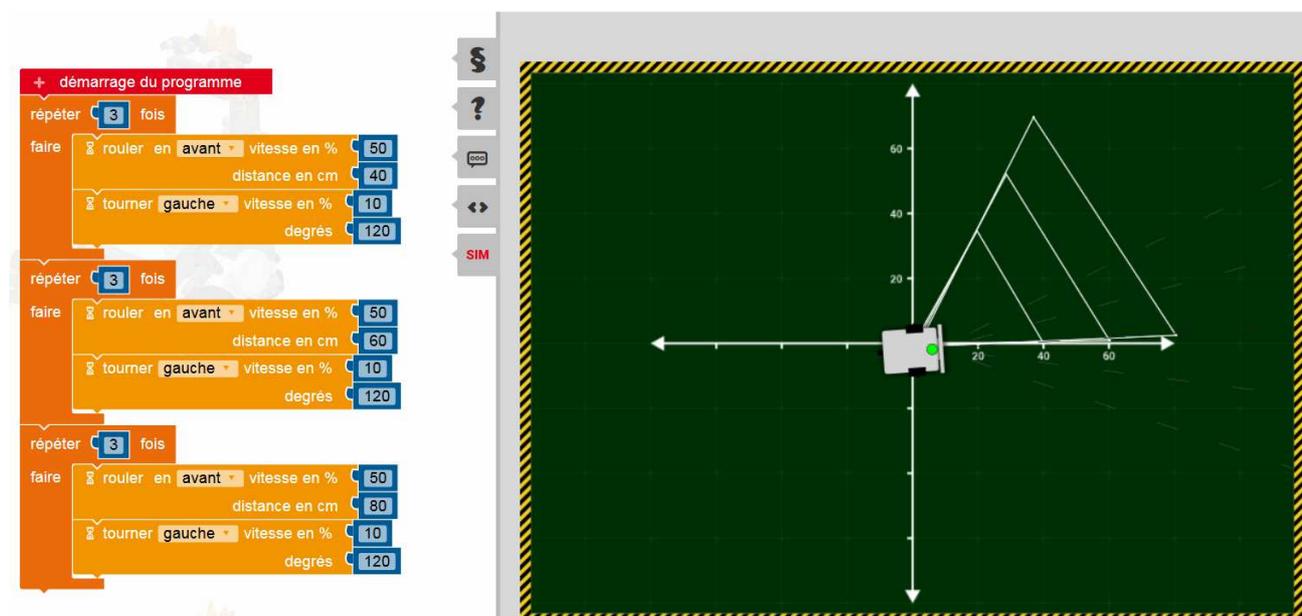
The screenshot shows a programming environment with a code block on the left and a simulation window on the right. The code block is a 'démarrage du programme' block followed by a 'répéter 2 fois' block. Inside the loop, there are four blocks: 'rouler en avant' (vitesse en %: 100, distance en cm: 40), 'tourner gauche' (vitesse en %: 10, degrés: 90), 'rouler en avant' (vitesse en %: 100, distance en cm: 60), and 'tourner gauche' (vitesse en %: 10, degrés: 90). The simulation window shows a robot starting at the origin (0,0) on a coordinate system. The robot moves forward 40cm, then turns left 90 degrees, then moves forward 60cm, then turns left 90 degrees. The resulting path is a rectangle with a width of 40cm and a height of 60cm. The axes are labeled with 20, 40, and 60. The simulation window has a 'SIM' button and a 'démarrer le programme dans la simulation' button.

### 3) Tracer un triangle équilatéral de 60cm



The image shows a Scratch script and its simulation. The script starts with a 'démarrage du programme' block, followed by a 'répéter 3 fois' loop. Inside the loop, there are three 'faire' blocks: 'rouler en avant' with 'vitesse en %' set to 100 and 'distance en cm' set to 60; 'tourner gauche' with 'vitesse en %' set to 10 and 'degrés' set to 120. The simulation shows a robot on a green field with a coordinate system. The robot has drawn a single equilateral triangle with a side length of 60 cm. The axes are labeled with 20, 40, 60 on the x-axis and 20, 40, 60 on the y-axis. A 'SIM' button is visible on the left side of the simulation area.

### 4) Trace 3 triangles inscrits équilatéraux de 40cm, 60cm et 80cm



The image shows a Scratch script and its simulation. The script starts with a 'démarrage du programme' block, followed by three 'répéter 3 fois' loops. Each loop contains a 'faire' block with 'rouler en avant' and 'tourner gauche' blocks. The first loop has 'vitesse en %' set to 50, 'distance en cm' set to 40, and 'degrés' set to 120. The second loop has 'vitesse en %' set to 50, 'distance en cm' set to 60, and 'degrés' set to 120. The third loop has 'vitesse en %' set to 50, 'distance en cm' set to 80, and 'degrés' set to 120. The simulation shows a robot on a green field with a coordinate system. The robot has drawn three nested equilateral triangles with side lengths of 40 cm, 60 cm, and 80 cm. The axes are labeled with 20, 40, 60 on the x-axis and 20, 40, 60 on the y-axis. A 'SIM' button is visible on the left side of the simulation area.

5) Reproduis ce programme qui utilise une variable « x » et complète les éléments manquants pour obtenir les mêmes triangles que précédemment.

```
+ démarrage du programme
- variable x : nombre ← 40

répéter fois
faire
  répéter fois
  faire
    rouler en avant vitesse en %
    distance en cm
    tourner gauche vitesse en % 10
    degrés
  fixer x à x +
```

### Correction

The screenshot shows a programming environment with a code block on the left and a simulation window on the right. The code block is as follows:

```
+ démarrage du programme
- variable x : nombre ← 40

répéter 3 fois
faire
  répéter 3 fois
  faire
    rouler en avant vitesse en % 50
    distance en cm x
    tourner gauche vitesse en % 10
    degrés 120
  fixer x à x + 20
```

The simulation window shows a robot on a green field with a coordinate system. The robot is at the origin (0,0). The x-axis ranges from 0 to 60, and the y-axis ranges from 0 to 60. A triangle is drawn with vertices at (0,0), (60,0), and (30,60). The robot's path is shown as a series of small grey squares.