

```
void main_task(intptr_t unused) {
230 // Draw information
231 lcdfont_t font = EV3_FONT_MEDIUM;
232 ev3_lcd_set_font(font);
233 int32_t fontw, fonth;
234 ev3_font_get_size(font, &fontw, &fonth);
235 char lcdstr[100];
236 ev3_lcd_draw_string("App: Gyroboy", 0, 0);
237 sprintf(lcdstr, "Port%c:Gyro sensor", '1' + gyro_sensor_port);
238 ev3_lcd_draw_string(lcdstr, 0, fonth);
239 sprintf(lcdstr, "Port%c:Left motor", 'A' + left_motor_port);
240 ev3_lcd_draw_string(lcdstr, 0, fonth * 2);
241 sprintf(lcdstr, "Port%c:Right motor", 'A' + right_motor_port);
242 ev3_lcd_draw_string(lcdstr, 0, fonth * 3);
243
244 // Register buttons
245 ev3_button_set_on_clicked(BACK_BUTTON, button_callback);
246 ev3_button_set_on_clicked(CENTER_BUTTON, button_callback);
247 ev3_button_set_on_clicked(LEFT_BUTTON, button_callback);
248
249 // Configure sensors
250 ev3_sensor_config(gyro_sensor, GYRO_SENSOR);
251
252 // Configure motors
253 ev3_motor_config(left_motor, LARGE_MOTOR);
254 ev3_motor_config(right_motor, LARGE_MOTOR);
255
256 // Start task for self-balancing
257 act_tsk(BALANCE_TASK);
258
259 // Open Bluetooth file
260 bt = ev3_serial_open_file(EV3_SERIAL_BT);
261 assert(bt != NULL);
262
263 // Start task for printing message while idle
264 act_tsk(IDLE_TASK);
265
266 while(1) {
267     while (!ev3_bluetooth_is_connected()) tslp_tsk(IDLE_TASK);
268     uint8_t c = fgetc(bt);
269     sus_tsk(IDLE_TASK);
270     switch(c) {
271     case 'w':
272         if(motor_control_drive < 0)
273             motor_control_drive = 0;
274         else
275             motor_control_drive += 10;
276         fprintf(bt, "motor_control_drive: %d\n", motor_control_drive);
277         break;
278     }
```

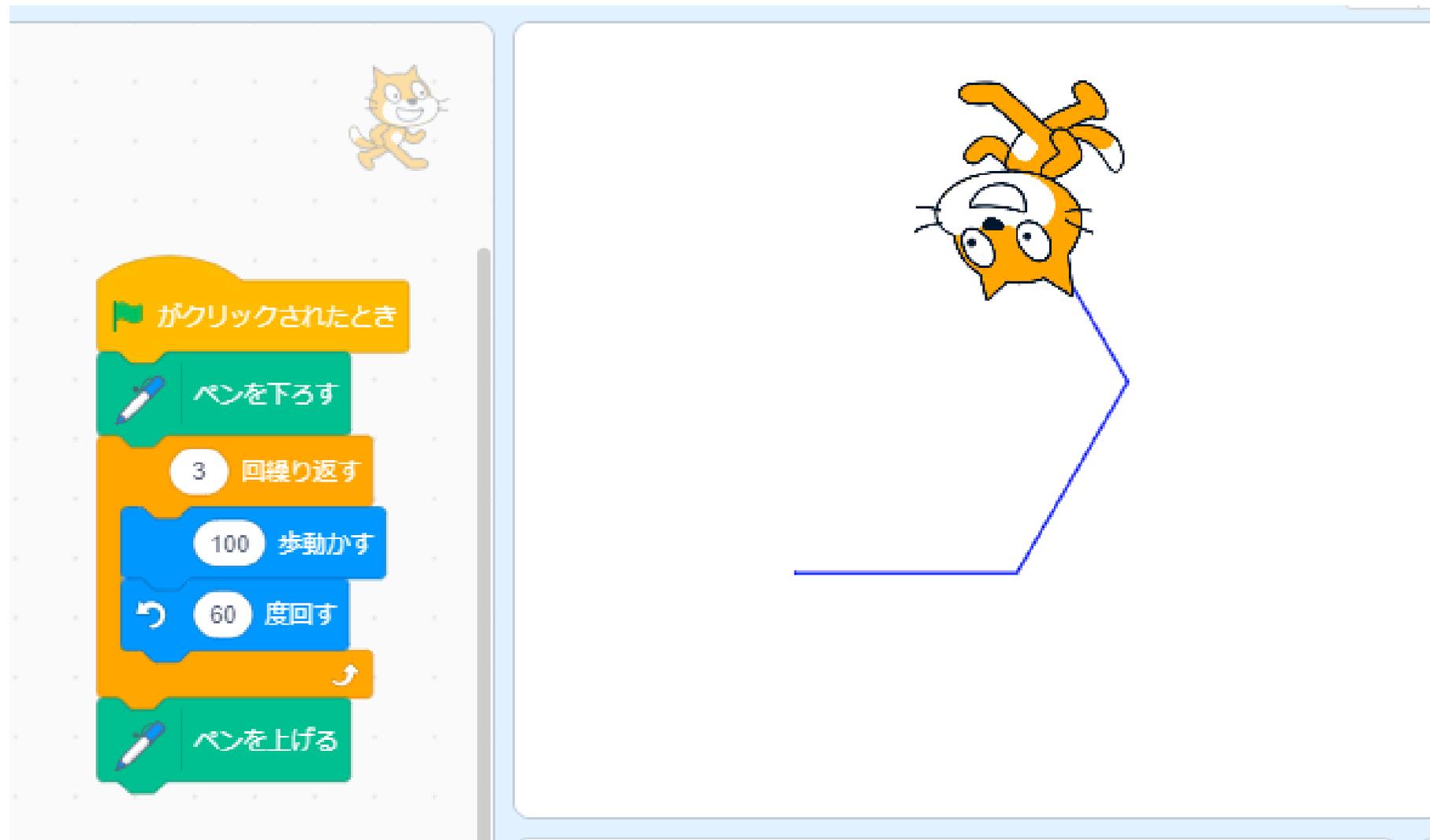
Scratchによる正多角形の描画



正三角形を描く

Scratchによる正多角形の描画

Scratchで正三角形を描こう



The image shows a Scratch workspace with a script on the left and a stage on the right. The script, triggered by a click, contains the following steps:

- がクリックされたとき (When clicked)
- ペンを下ろす (Put pen down)
- 3 回繰り返す (Repeat 3 times)
- 100 歩動かす (Move 100 steps)
- 60 度回す (Turn 60 degrees)
- ペンを上げる (Put pen up)

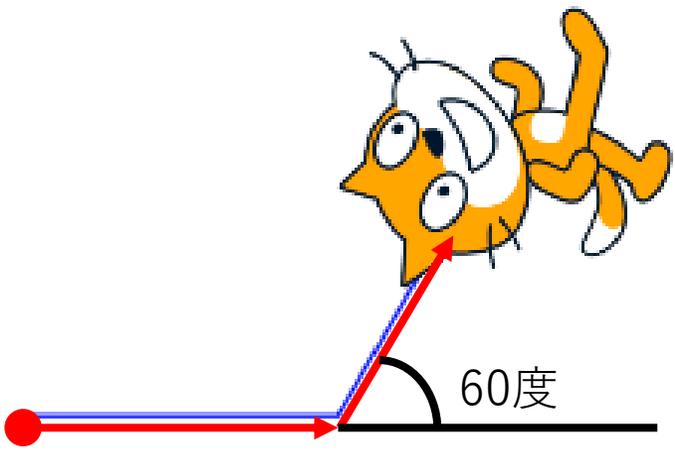
The stage shows a blue right-angled triangle drawn on a white background. The Scratch cat character is positioned at the top vertex of the triangle, appearing upside down.

Scratchによる正多角形の描画

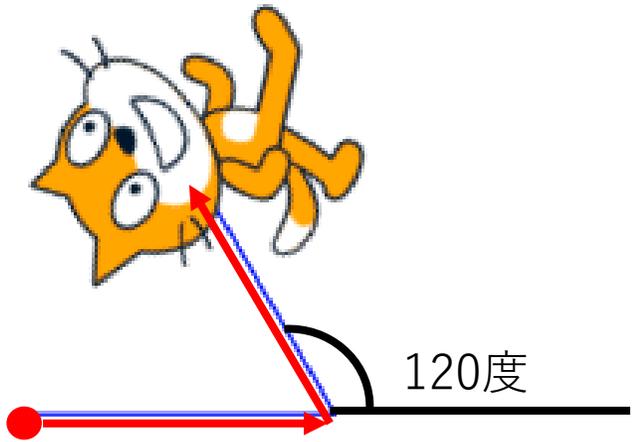
試行錯誤して目標達成へ

正三角形を描く

```
Scratch script for drawing an equilateral triangle:  
1. When clicked (yellow block)  
2. Pen down (green block)  
3. Repeat 3 times (orange block)  
   - Move 100 steps (blue block)  
   - Turn 120 degrees (blue block)  
4. Pen up (green block)
```



正しく描けない



Scratchによる正多角形の描画

Scratchで正三角形を描こう



処理手順の直前に時間をあけるブロックを配置して、処理時間をコントロールするプログラム



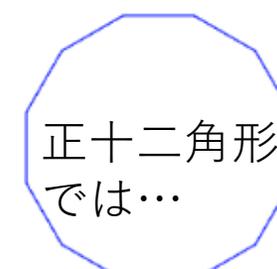
全てを消して
初期位置に移動する
プログラム

Scratchによる正多角形の描画

きまりを見いだして

正多角形の種類	辺の数 (繰り返し回数)	回す角度	辺の数×回す角度
正三角形	3	120度	$3 \times 120\text{度} = ?$
正方形	4	90度	$4 \times 90\text{度} = ?$
正五角形	5	?	?
正六角形	6	60度	$6 \times 60\text{度} = ?$

多角形と円(360度)との関係の性質を通して、
正五角形、正十二角形…ではどうなるか考察し、プログラミングしてみる。

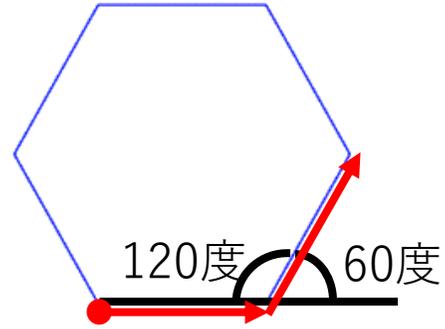


Scratchによる正多角形の描画

きまりを活用して

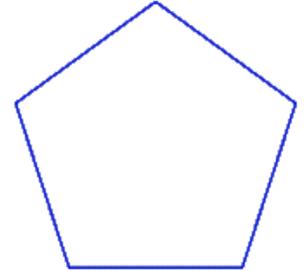
正六角形

```
Scratch script for drawing a regular hexagon:  
1. When clicked, set the pen tool to down.  
2. Repeat the following loop 6 times:  
   - Move 100 steps.  
   - Turn 60 degrees.  
3. Set the pen tool to up.
```



正五角形

```
Scratch script for drawing a regular pentagon:  
1. When clicked, set the pen tool to down.  
2. Repeat the following loop 5 times:  
   - Move 100 steps.  
   - Turn 72 degrees.  
3. Set the pen tool to up.
```



正十二角形

```
Scratch script for drawing a regular dodecagon:  
1. When clicked, set the pen tool to down.  
2. Repeat the following loop 12 times:  
   - Move 80 steps.  
   - Turn 30 degrees.  
3. Set the pen tool to up.
```

