

# DRAWING WITH VARIABLES

## PREDICT MARKSHEET



Read the code and the code labels carefully with your partner

Write or draw in the box what you think the code does

Assigns 50 to **distance** variable (Initialisation)

Move **distance** variable steps

Subtract 2 from **distance** variable

```
when this sprite clicked
  pen down
  set distance to 50
  repeat 10
    move distance steps
    change distance by -2
    turn 90 degrees
```

I predict this code will  
**Draw a square pattern that gets smaller OR an indication that the shape gets smaller (1 mark)**  
When it is run

Assigns 0 **number\_of\_sides** variable (Initialisation)

Asks the users to type in a number and then assigns that number to **number\_of\_sides** variable

Loop **number\_of\_sides**

Divide 360 by **number\_of\_sides** and turn that amount of degrees

```
when this sprite clicked
  set number_of_sides to 0
  pen down
  ask Type in the number of sides as a number only and wait
  set number_of_sides to answer
  repeat number_of_sides
    move 30 steps
    turn 360 / number_of_sides degrees
```

I predict this code will  
**Draw regular 2d shapes OR draw many shapes (1 mark)**  
When it is run

Now mark your work using the predict marksheet

## DRAWING WITH VARIABLES

### INVESTIGATE ANSWERS

Run the program as many times as you want. Work with a partner to answer these questions.

Look inside the Drawing sprite



1, How many lines of code are initialisation? HINT Initialisation code clears away the effects of running the code before so it can run the same way again

**5 go to x and y, set rotation style, point in direction, set size, erase all (1 mark)**

2, Finish the pattern to list all the values of the distance variable while the program is running

50, 48, **46, 44, 42, 40, 38, 36, 34, 32, 30 (1 mark)**

3, How many times is the turn 90 degrees block run?

**10 times (1 mark)**

4, Which line of code takes away 2 from the distance variable every time it goes through a loop?

**Change distance by -2 (1 mark)**



Look inside the Shapes sprite

5, Once a number has been typed into an ask block, where does that answer go next?

HINT Answer is in the question (circle the right answer)

**A, answer block** B, number\_of\_sides variable C, Nowhere **(1 mark)**

6, Once a number value is in the answer bloc where is it transferred to next? (circle the right answer)

A, answer block **B, number\_of\_sides variable** C, Nowhere **(1 mark)**

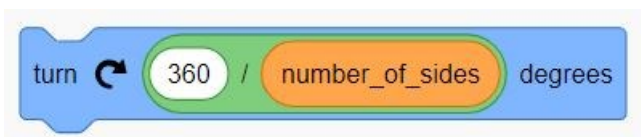
7, Complete the table

Users number	Repeats	Number of sides
3	<b>3</b>	3
7	7	<b>7</b>
10	<b>10</b>	<b>10</b>

**(1 mark)**

8, What maths does this block do? (Add, subtract, multiply, divide)

**divide (1 mark)**



## DRAWING WITH VARIABLES

### CHANGE MARKSHEET

Make changes to the code to answer these questions

Make changes to Drawing



1, What three things can you do to make the program run faster?

**A, Change wait 0.3 seconds to a lower number B, Remove wait 0.3 seconds C, Change the say block to a number below 1 second such as 0.5 seconds (3 marks)**

2, Change the code so that 50 lines are drawn. What did you change?

**Change repeat 10 to repeat 50 (1 mark)**

3, If the variable becomes a negative number what does the sprite do?

**Moves backwards (1 mark)**

4, Change the code so that the lines starts at 100 steps before getting shorter. What did you change?

**Change set distance to 50 to 100 (1 mark)**

5, Change the code so that it draws a different shape pattern. What did you change?

**Change degrees it turns (1 mark)**

Make changes to Shapes



6, Change the code so that shapes are drawn with another colour. What did you change?

**Change set pen color (1 mark)**

7, Change the code so that all shapes drawn are larger. What did you change?

**Change move 30 steps to a larger number (1 mark)**