

A5 Circle Math Functions

This program tests your abilities to make difficult math programs out of the blocks.

I would recommend that you try out the  button and try to type in the formulas. It is easier than building the blocks.

Your Task:

Ask the user for a radius.

Then make the following calculations and display the results.

On a circle:

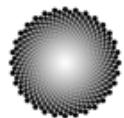
- $d=2r$
- $A=\pi r^2$
- $C=2\pi r$

On a sphere:

- $SA = 4\pi r^2$
- $V=(4\pi r^3)/3$

The screen might look like the one on the right→

Circles R Us



Click the button to enter a radius.

Enter a radius

The radius is 5

On a circle:

The diameter is 10.0

The area is 78.5398163

The circumference is 31.4159

On a sphere:

The surface area is 314.15926

The volume is 523.59877

Code Block Example:

The Scratch script is titled "Math Calculations". It has a green "when green flag clicked" hat at the top. Below it is a green "repeat []" control block. Inside the loop, there is a green "if then" control block with the condition "button A pressed?". The body of the "if then" block contains:
- A green "say [] for [] seconds" control block with the message "Enter Data".
- A green "show []" control block with the variable "answer".
- A green "set [] to []" control block with the variable "radius" set to "promptNum(“Enter the radius: ”)".
- A green "set [] to []" control block with the variable "area" set to "3.14159 * (radius * radius)".
- A green "say [] for [] seconds" control block with the message "The answer will appear here.". The "repeat" loop ends with a green "end" control block.

A useful reference program is the one on the math sheet.

The “Enter Data” button’s id is enter.

The “The answer will appear here.” Label’s id is answer.

The Scratch script shows the code for the "Math Calculations" program. It starts with a green "when green flag clicked" hat. Inside, there is a green "repeat []" control block. Inside the loop, there is a green "if then" control block with the condition "button A pressed?". The body of the "if then" block contains:
- A green "onEvent (▼ “enter”, ▼ “click”, []) []" control block.
- A green "function(event) { [] }" control block.
- Inside the function, there is a purple "var radius = [promptNum(“Enter the radius: ”)];" control block.
- Inside the function, there is a purple "var area = [3.14159 * (radius * radius)];" control block.
- Inside the function, there is a yellow "setText(▼ “answer”, [“The area is ” + area]);" control block.
- The function ends with a green "}" control block.
- The entire "onEvent" block ends with a green ")" control block.