Name : ..... Date : .....
Secondes... **API :** Chapter Informatique - Programming in Python
Times : 50 minutes ❑ The assignment is to be attached in a single file.py by email

Determine even or odd functions

1 Determine even or odd for particular functions

Order : Determine even or odd functions for :

$$f(x) = ax + b$$
$$g(x) = x^n$$

All traces of research will be valued.

Inputs

Input 1 : Float `a`.
Input 2 : Float `b`.
Input 3 : Integer `n`.

Outputs

Case 1 : String with only the words :
`function g, function f, even, odd, not, or, and, is.`

Validate your program

Test your program to validate all case it :

	Input 1	Input 2	Input 3	Output
❑ **Test 1**	`a = ...`	`b = ...`	`n = ...`	...
❑ **Test 2**	`a = ...`	`b = ...`	`n = -...`	...
❑ **Test 3**	`a = ...`	`b = 0`	`n = ...`	...
❑ **Test 4**	`a = 0`	`b = ...`	`n = ...`	...
❑ **Test 5**	`a = 0`	`b = 0`	`n = 0`	...

Your program

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2 Test even or odd for many functions

Order : Determine even or odd functions of a defined function `f` testing multiple values between `u` and `v` with a step `step`.

Some useful commands

- ❑ Use `while`.
- ❑ Import the module `math`.
- ❑ Define a python function `f(x)` with `def` and `return`.
- ❑ Create two variables `bool`.
- ❑ `abs(a)` the absolute value of a number a.

Inputs

Input 1 : Float `u`.
Input 2 : Float `v`.
Input 3 : Float `step`.

Outputs

Case 1 : `string` with only the words : `function f is even :, True` or `False`.
Case 2 : `string` with only the words : `function f is odd :, True` or `False`.

Validate your program

Test your program to validate it :

	Input 1	Input 2	Input 3	function f	Output 1-2
❑ **Test 1**	`u = 0`	`v = 10`	`step = 0.1`	$f(x) = x^2$	`function is even : True` `function is odd : False`
❑ **Test 2**	`u = -8`	`v = 8`	`step = 0.1`	$f(x) = x^3$	`function is even : False` `function is odd : True`
❑ **Test 3**	`u = -5`	`v = 5`	`step = 1`	$f(x) = x^2 - 5$	`function is even : True` `function is odd : False`
❑ **Test 4**	`u = -90`	`v = 100`	`step = 0.5`	$f(x) = \|x\|$	`function is even : True` `function is odd : False`
❑ **Test 5**	`u = -10`	`v = 10`	`step = 0.4`	$-x^3 + x - 3$	`function is even : False` `function is odd : False`
❑ **Test 6**	`u = -5`	`v = 7`	`step = 0.5`	$f(x) = \cos(x)$	`function is even : True` `function is odd : False`
❑ **Test 7**	`u = -8`	`v = 10`	`step = 0.2`	$f(x) = \sin(x)$	`function is even : False` `function is odd : True`
❑ **Test 8**	`u = 0`	`v = 25`	`step = 0.3`	$f(x) = 0$	`function is even : True` `function is odd : True`