

# 2014-04-14.sagews

April 14, 2014

## Contents

<b>1</b>	<b>Math 480b Sage Course</b>	<b>1</b>
1.1	April 14, 2014 . . . . .	1
1.2	Exception Handling . . . . .	2
1.3	Python classes . . . . .	4

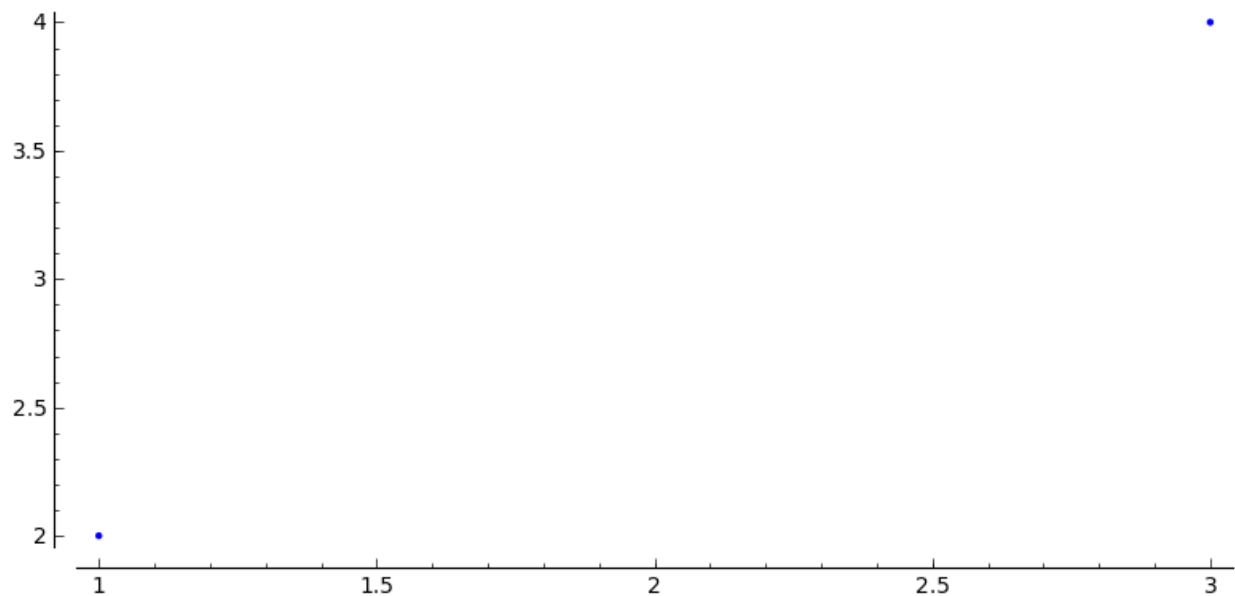
## 1 Math 480b Sage Course

### 1.1 April 14, 2014

Screencast: [http://youtu.be/fualtE\\_GcuY](http://youtu.be/fualtE_GcuY)  
Plan

- Questions?
- Homework discussion:
  - Youll find a folder grading/homework2 in your project. Grade the three assignments.
  - Youll find a new assignment in homework3/
  - Weve collected the homework you graded and are looking at it.
- Python
  - exception handling: try/except/finally
  - classes: creating your own data types
  - decorators

```
points([(1,2), (3,4)])
```



## 1.2 Exception Handling

try/except/finally

```
try:
    a = 2 + 2
    b = 3/4
    c = 0
    d = a/c
    print "nothing bad happened"
except:    # naked exceptionn
    print "something bad happened"
finally:
    print "clean stuff up"
```

```
something bad happened
clean stuff up
```

```
a
b
c
d
4
3/4
0
```

Error in lines 4-4

Traceback (most recent call last):

```
File "/projects/edf7b34d-8ef9-49ad-b83f-8fa4cde53380/.sagemathcloud/sage_server.py",
line 733, in execute
    exec compile(block+'\n', '', 'single') in namespace, locals
File "", line 1, in <module>
```

```
NameError: name 'd' is not defined
```

```
1/0/0
```

```
Error in lines 1-1
```

```
Traceback (most recent call last):
```

```
File "/projects/edf7b34d-8ef9-49ad-b83f-8fa4cde53380/.sagemathcloud/sage_server.py",  
line 733, in execute
```

```
    exec compile(block+'\n', '', 'single') in namespace, locals
```

```
File "", line 1, in <module>
```

```
File "element.pyx", line 1811, in sage.structure.element.RingElement.__div__  
(sage/structure/element.c:15184)
```

```
File "integer.pyx", line 1797, in sage.rings.integer.Integer._div_  
(sage/rings/integer.c:13165)
```

```
File "integer_ring.pyx", line 430, in sage.rings.integer_ring.IntegerRing_class._div  
(sage/rings/integer_ring.c:5780)
```

```
ZeroDivisionError: Rational division by zero
```

```
prod = 5
```

```
prod([1,2,3])
```

```
Error in lines 2-2
```

```
Traceback (most recent call last):
```

```
File "/projects/edf7b34d-8ef9-49ad-b83f-8fa4cde53380/.sagemathcloud/sage_server.py",  
line 733, in execute
```

```
    exec compile(block+'\n', '', 'single') in namespace, locals
```

```
File "", line 1, in <module>
```

```
TypeError: 'sage.rings.integer.Integer' object is not callable
```

```
reset('prod')
```

```
prod([1,2,3])
```

```
6
```

```
reset('NameError')
```

```
NameError
```

```
<type 'exceptions.NameError'>
```

```
try:
```

```
    a = 2 + 2
```

```
    b = 3/4
```

```
    c = 0 + fubar
```

```
    d = a/c
```

```
    print "nothing bad happened"
```

```
except ZeroDivisionError, msg:
```

```
    print "somebody divided by 0: %s"%msg
```

```
except (ZeroDivisionError, NameError, ValueError), msg:
```

```
    print "somebody divided by 0 or ..."
```

```
    print "somebody used a variable that isn't defined"
```

```
    print "or something else..."
```

```
finally:
```

```
    print "clean stuff up"
```

```
clean stuff up
Error in lines 1-14
Traceback (most recent call last):
  File "/projects/edf7b34d-8ef9-49ad-b83f-8fa4cde53380/.sagemathcloud/sage_server.py",
line 733, in execute
    exec compile(block+'\n', '', 'single') in namespace, locals
  File "", line 4, in <module>
NameError: name 'fubar' is not defined
```

```
ZeroDivisionError
<type 'exceptions.ZeroDivisionError'>
```

```
NameError
ZeroDivisionError('Rational division by zero',)
```

### 1.3 Python classes

```
class Hour:
    def __init__(self, hour, am):
        self.hour = hour
        self.am = am
```