

①

```
nums = Series([7,8,9], index=[-1,0,1])
x = Series({"A":1, "B":2, "C":3})
y = Series({"A":2, "C":12, "D":4})
```

Expression	Result(s)
<code>nums[0]</code>	
<code>nums.loc[0], nums.iloc[0]</code>	
<code>nums.loc[-1], nums.iloc[-1]</code>	
<code>x / y</code>	

②

```
s = Series(["A", "B", "C", "D"])
letters = Series(["x", "y", "z"], index=[1, 0, 3])
```

Expression	Result(s)
<code>s[-1]</code>	
<code>s[-2:]</code>	
<code>s + s</code>	
<code>letters[0]</code>	
<code>s + letters</code>	
<code>s[1:] + s[:-1]</code>	

③

```
v = Series([-1, 1, 200, 191, 4])
```

Expression	Result(s)
<code>v &lt; 0</code>	
<code>v * v == 1</code>	
<code>v[v &gt; 100]</code>	
<code>v[v % 2 == 0]</code>	
<code>v[(v&gt;0) &amp; (v&lt;100)]</code>	

**note:** `Series.loc[X]` looks for label X in the **index**. `Series.iloc[X]` looks for the **int position** X. These names are confusing. `iloc` supports negative indexing.

Code:	storms.csv:
<pre>path = "storms.csv" tab = pd.read_csv(path)  map = DataFrame({     "code": ["o", "p", "a"],     "where": ["other", "Pacific", "Atlantic"] })</pre>	<pre>name,year,type,speed,place alice,2016,tornado,100,o bob,2016,hurricane,200,p cindy,2017,tornado,150,o dan,2018,tornado,300,o eve,2018,hurricane,250,a</pre>

4	Expression	Result(s)
	<code>map["code"]</code>	
	<code>map.code</code>	
	<code>type(map.code), type(map.where)</code>	
	<code>tab.year.mean()</code>	
	<code>tab.year == 2018</code>	
	<code>tab.name[tab.year == 2018]</code>	
	<code>map["where"] == "Atlantic"</code>	
	<pre>b = map["where"] == "other" code = map.code[b].item() nms = tab.name[tab.place==code]</pre>	# what are b, code, nms?

5	Expression	Result(s)
	<code>tab.loc[0]</code>	
	<code>tab.loc[4, "type"]</code>	
	<pre>map.loc[0, "where"] = "mainland" place = map["where"][0]</pre>	# what is place?
	<pre>tab.loc[:, "speed"] += 1 col = tab.speed</pre>	# what is col?

**note:** `s.COL` is a shortcut for `s["COL"]`, unless `COL` collides with a method name  
**also:** when a Series `s` contains exactly one item, `s.item()` extracts it