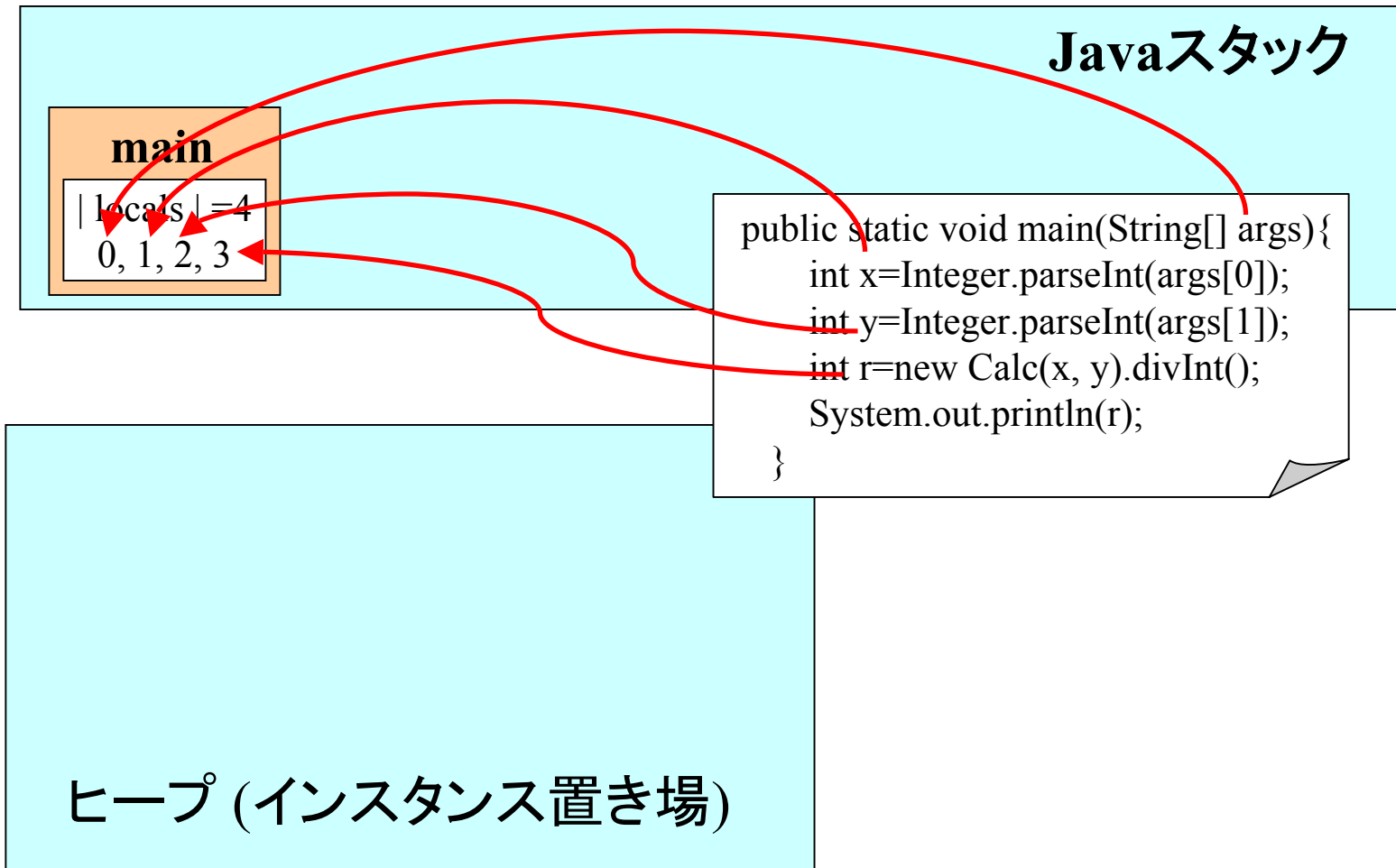


new Calc(7,3).divInt()実行前



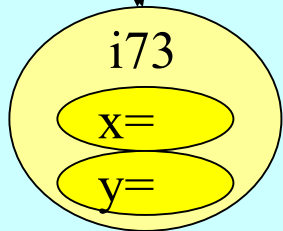
new Calc(7,3).divInt()

Javaスタック

main

| locals | =4
0, 1, 2, 3

| stack | =4
0, 1, 2, 3



ヒープ

(インスタンス置き場)

```
.method public static main([Ljava/lang/String;)V
.limit stack 4
.limit locals 4
aload_0
iconst_0
aaload
invokestatic java/lang/Integer/parseInt(Ljava/lang/String;)I
istore_1
aload_0
iconst_1
aaload
invokestatic java/lang/Integer/parseInt(Ljava/lang/String;)I
istore_2
new Calc
dup
iload_1
iload_2
invokespecial Calc/<init>(II)V
invokevirtual Calc/divInt()I
istore_3
getstatic java/lang/System/out Ljava/io/PrintStream;
iload_3
invokevirtual java/io/PrintStream/println(I)V
return
.end method
```

new Calc(7,3).divInt()

Javaスタック

main

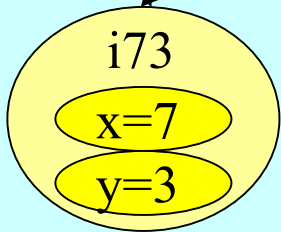
| locals | =4
0, 1, 2, 3

| stack | =4
0, 1, 2, 3

<init>

| locals | =3
0, 1, 2

| stack | =2
0, 1



ヒープ (インスタンス置き場)

new Calc

dup

iload_1

iload_2

invokespecial Calc/<init>(II)V

invokevirtual Calc/divInt()I

istore_3

.method <init>(II)V

.limit stack 2

.limit locals 3

aload_0

invokespecial java/lang/Object/<init>()V

aload_0

iload_1

putfield Calc/x I

aload_0

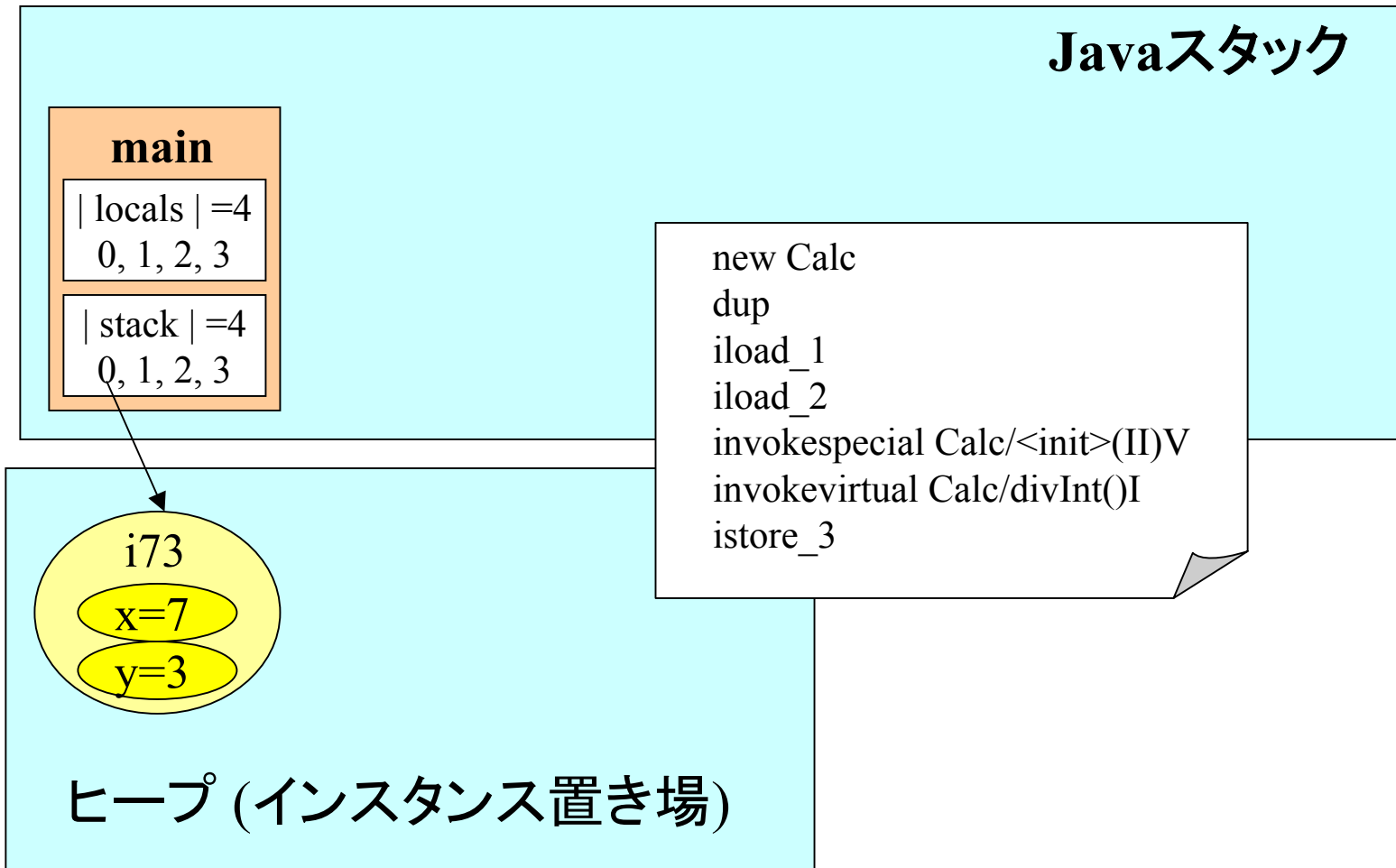
iload_2

putfield Calc/y I

return

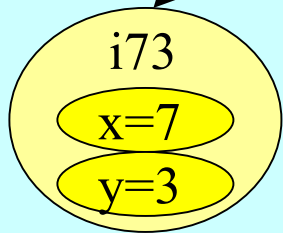
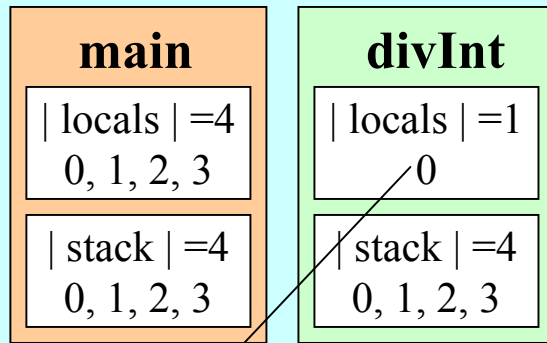
.end method

new Calc(7,3).divInt()



new Calc(7,3).divInt()

Javaスタック



ヒープ (インスタンス置き場)

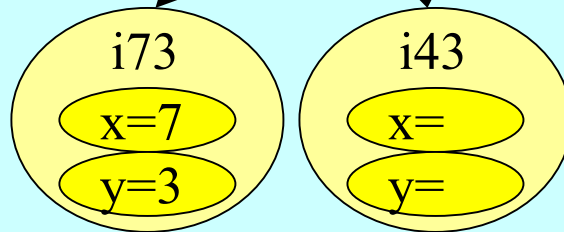
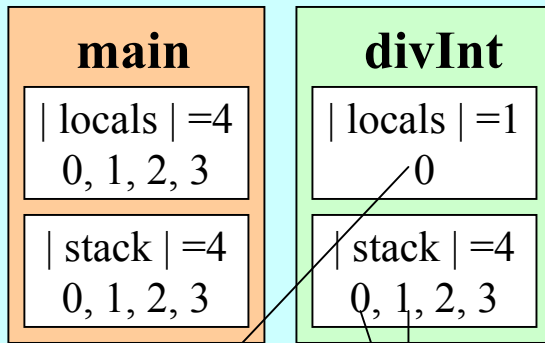
```
.method divInt()I
.limit stack 4
.limit locals 1
aload_0
getfield Calc/x I
aload_0
getfield Calc/y I
if_icmpge Label1
iconst_0
ireturn
```

```
Label1:
new Calc
dup
aload_0
getfield Calc/x I
aload_0
getfield Calc/y I
isub
aload_0
getfield Calc/y I
invokespecial Calc/<init>(II)V
invokevirtual Calc/divInt()I
iconst_1
iadd
ireturn
.end method
```

```
new Calc
dup
iload_1
iload_2
invokespecial Calc/<init>(II)V
invokevirtual Calc/divInt()I
istore_3
```

new Calc(7-3,3).divInt()

Javaスタック

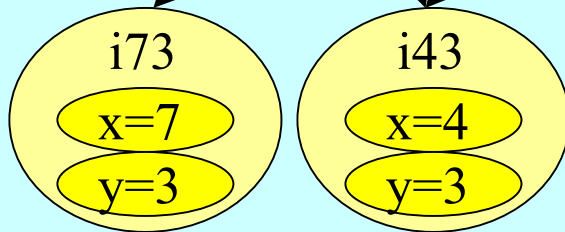
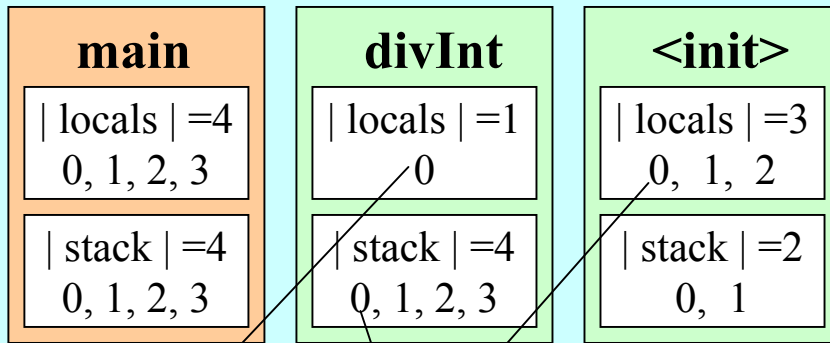


ヒープ (インスタンス置き場)

```
.method divInt()I
.limit stack 4
.limit locals 1
load_0
getfield Calc/x I
load_0
getfield Calc/y I
if_icmpge Label1
iconst_0
ireturn
Label1:
new Calc
dup
load_0
getfield Calc/x I
load_0
getfield Calc/y I
isub
load_0
getfield Calc/y I
invokespecial Calc/<init>(II)V
invokevirtual Calc/divInt()I
iconst_1
iadd
ireturn
.end method
```

new Calc(7,3).divInt()

Javaスタック



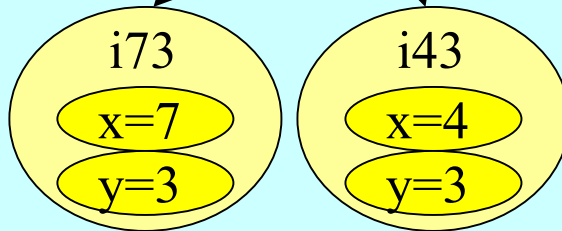
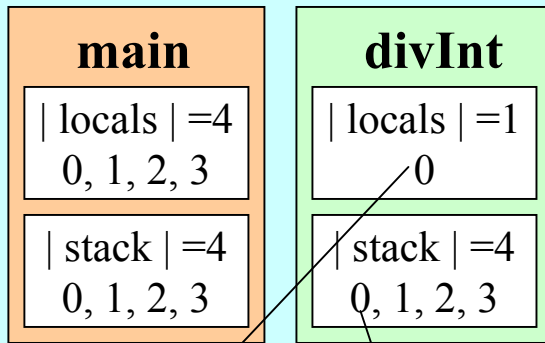
ヒープ (インスタンス置き場)

```
.method divInt()I
.limit stack 4
.limit locals 1
aload_0
getfield
aload_0
getfield
if_icmpgt
iconst_0
ireturn
Label1:
new Calc
dup
aload_0
getfield
aload_0
getfield Calc/y I
isub
aload_0
getfield Calc/y I
invokespecial Calc/<init>(II)V
invokevirtual Calc/divInt()I
iconst_1
iadd
ireturn
.end method

.method <init>(II)V
.limit stack 2
.limit locals 3
aload_0
invokespecial java/lang/Object/<init>()V
aload_0
iload_1
putfield Calc/x I
aload_0
iload_2
putfield Calc/y I
return
.end method
```

new Calc(7-3,3).divInt()

Javaスタック

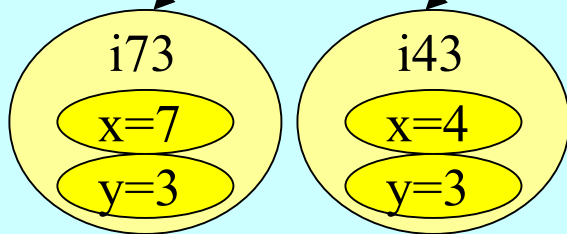
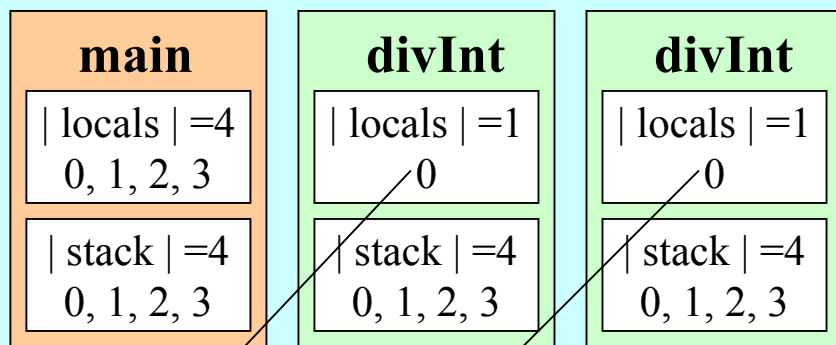


ヒープ (インスタンス置き場)

```
.method divInt()I
.limit stack 4
.limit locals 1
  aload_0
  getfield Calc/x I
  aload_0
  getfield Calc/y I
  if_icmpge Label1
  iconst_0
  ireturn
Label1:
  new Calc
  dup
  aload_0
  getfield Calc/x I
  aload_0
  getfield Calc/y I
  isub
  aload_0
  getfield Calc/y I
  invokespecial Calc/<init>(II)V
  invokevirtual Calc/divInt()I
  iconst_1
  iadd
  ireturn
.end method
```


new Calc(7-3,3).divInt()

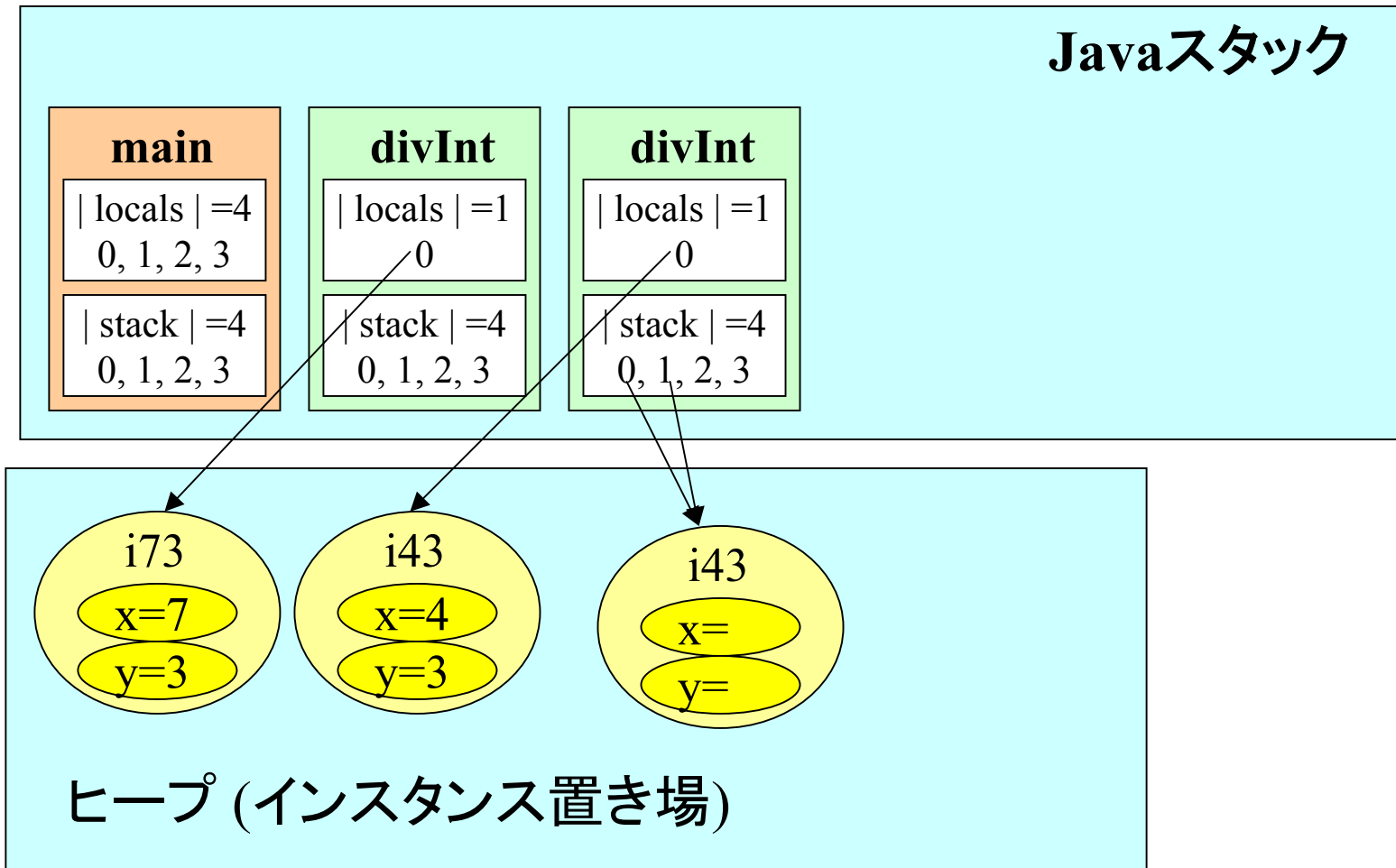
Javaスタック



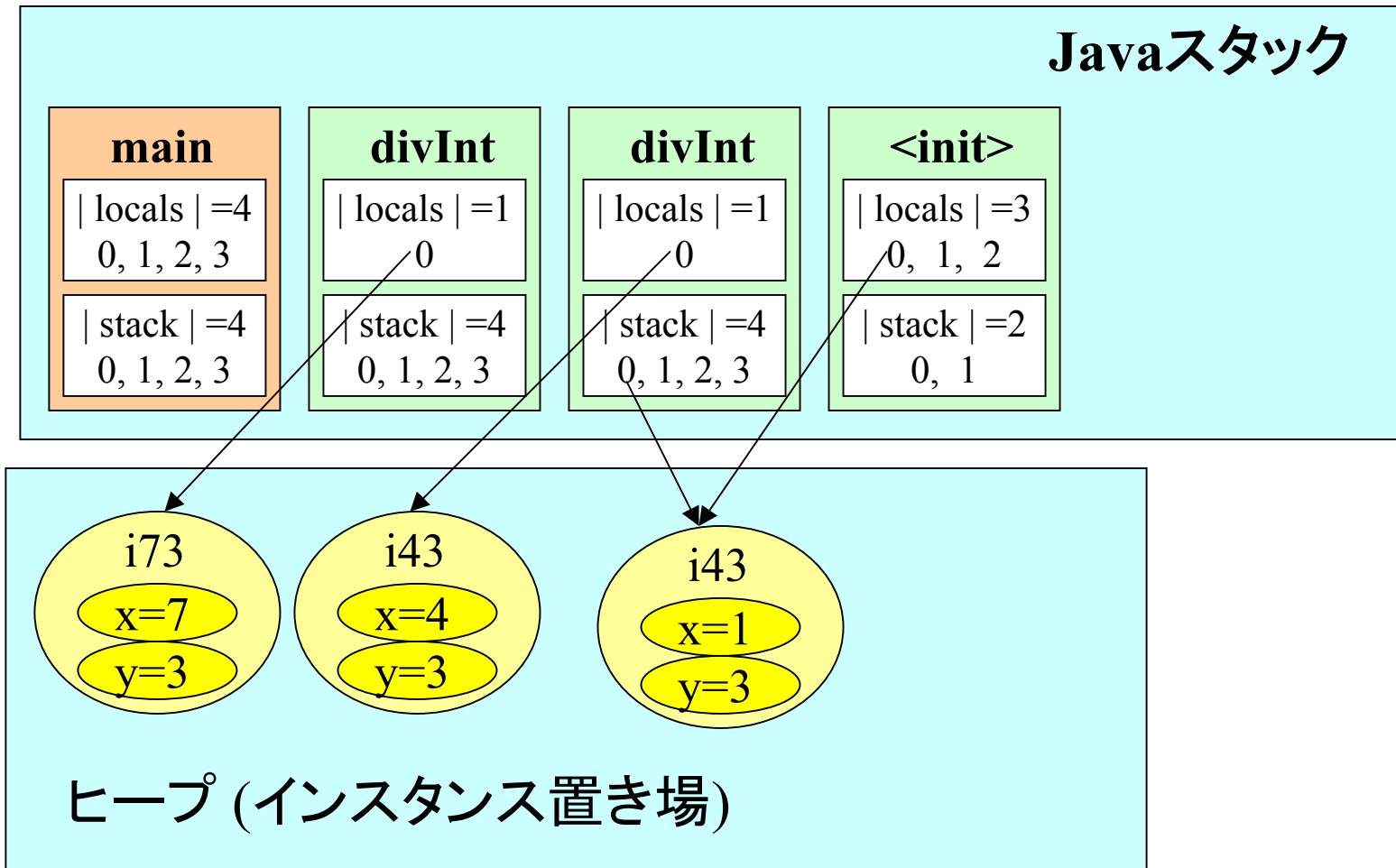
ヒープ (インスタンス置き場)

```
.method divInt()I
.limit stack 4
.limit locals 1
load_0
getfield Calc/x I
load_0
getfield Calc/y I
if_icmpge Label1
iconst_0
ireturn
Label1:
new Calc
dup
load_0
getfield Calc/x I
load_0
getfield Calc/y I
isub
load_0
getfield Calc/y I
invokespecial Calc/<init>(II)V
invokevirtual Calc/divInt()I
iconst_1
iadd
ireturn
.end method
```

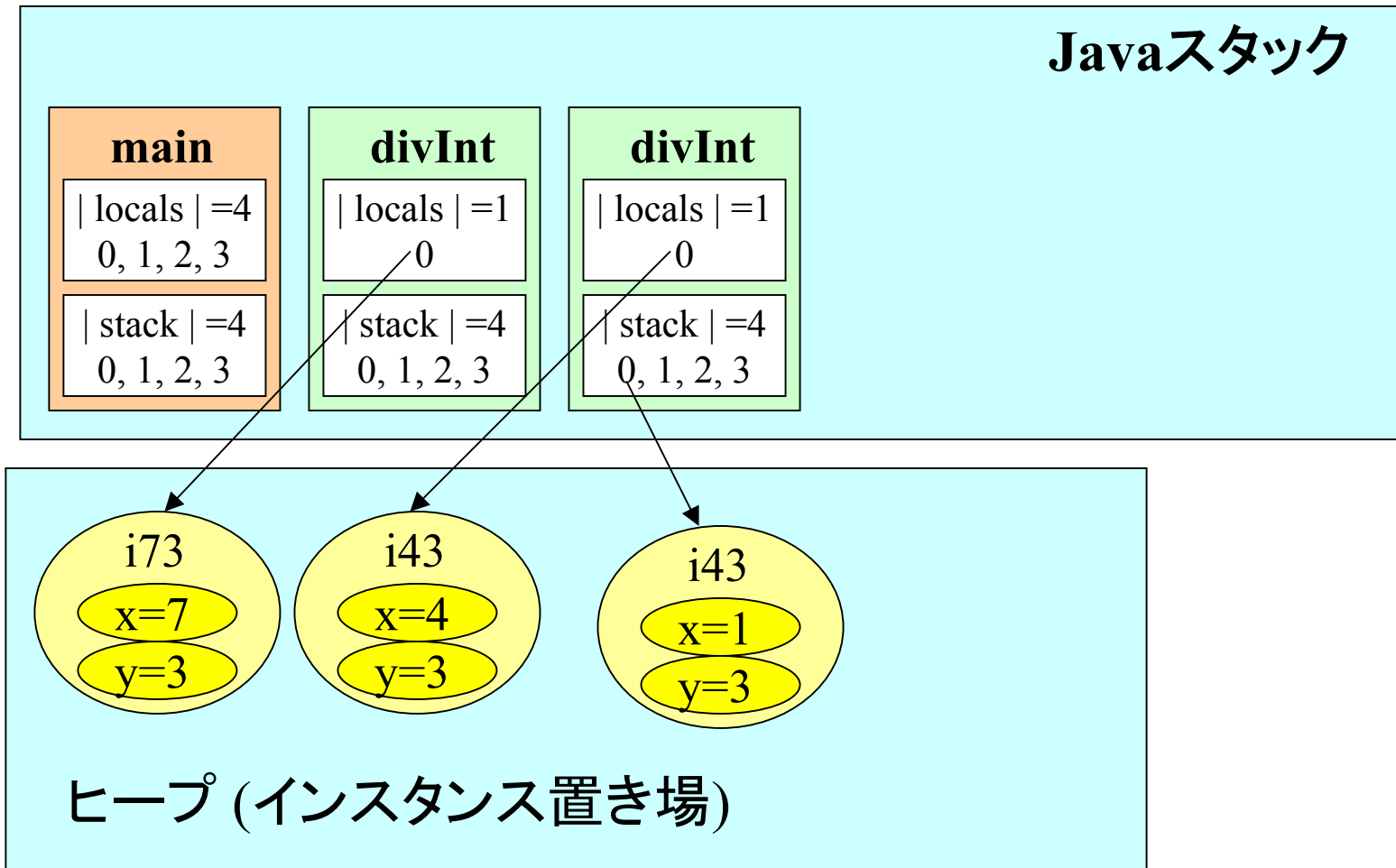
new Calc(7-3-3,3).divInt()



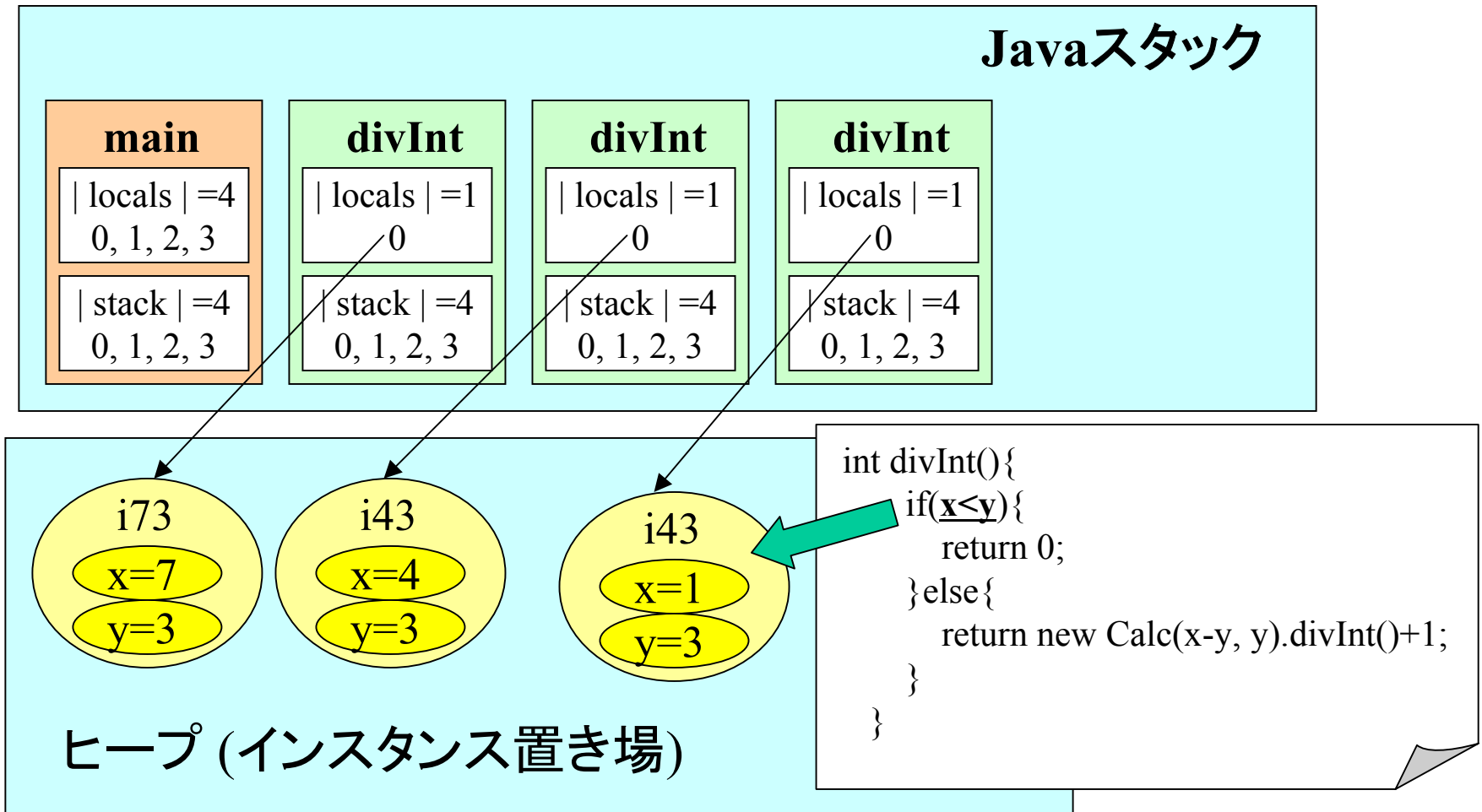
new Calc(7-3-3,3).divInt()



new Calc(7-3-3,3).divInt()

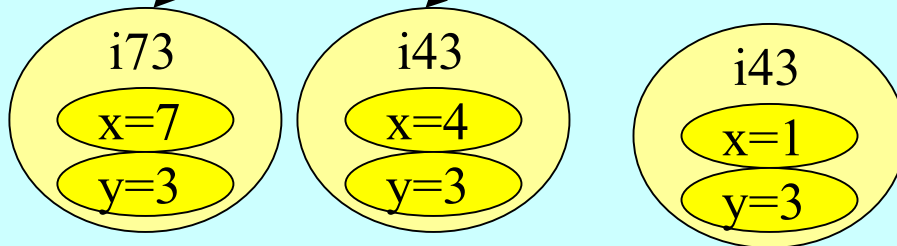
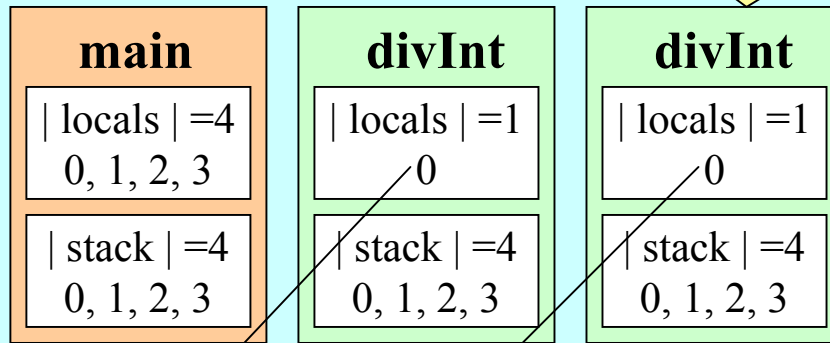


new Calc(7-3-3,3).divInt()



return 0

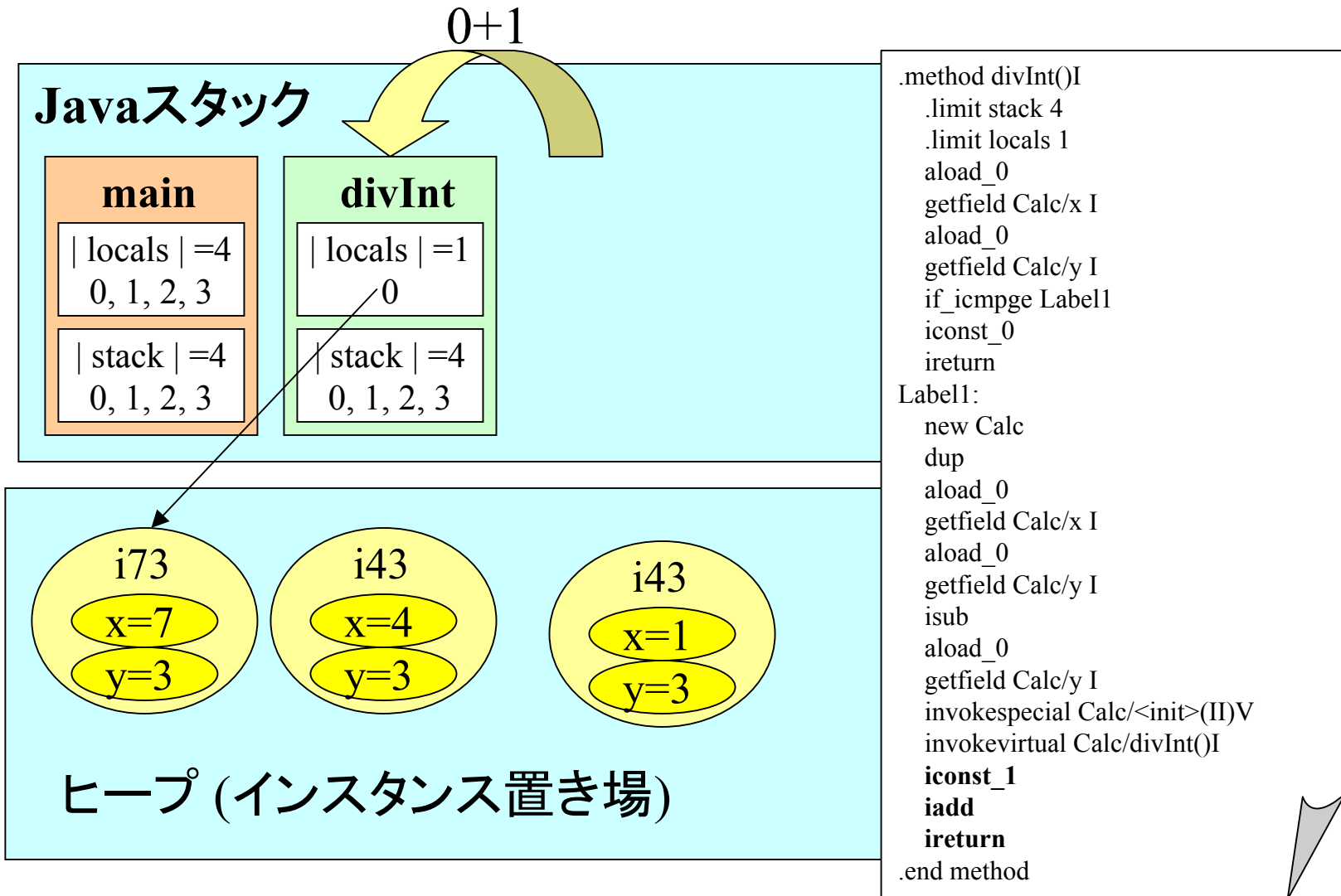
Javaスタック



ヒープ (インスタンス置き場)

```
.method divInt()I
.limit stack 4
.limit locals 1
load_0
getfield Calc/x I
load_0
getfield Calc/y I
if_icmpge Label1
iconst_0
ireturn
Label1:
new Calc
dup
load_0
getfield Calc/x I
load_0
getfield Calc/y I
isub
load_0
getfield Calc/y I
invokespecial Calc/<init>(II)V
invokevirtual Calc/divInt()I
iconst_1
iadd
ireturn
.end method
```

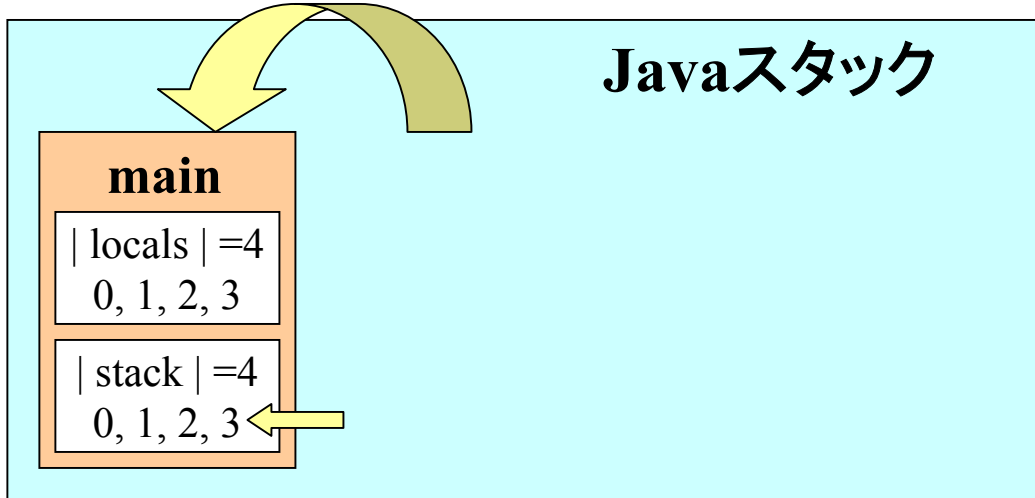
return new Calc(7-3-3,3).divInt()+1



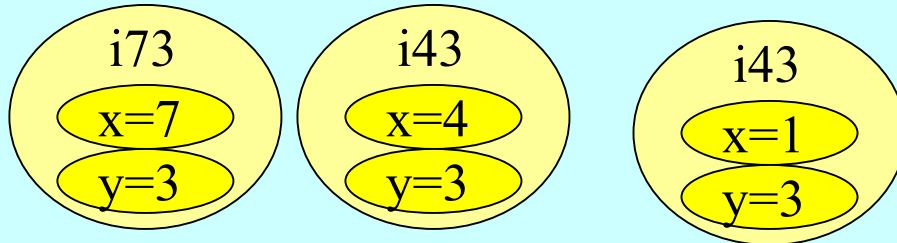
return new Calc(7-3,3).divInt()+1

0+1+1

Javaスタック



```
.method divInt()I
.limit stack 4
.limit locals 1
aload_0
getfield Calc/x I
aload_0
getfield Calc/y I
if_icmpge Label1
iconst_0
ireturn
Label1:
new Calc
dup
aload_0
getfield Calc/x I
aload_0
getfield Calc/y I
isub
aload_0
getfield Calc/y I
invokespecial Calc/<init>(II)V
invokevirtual Calc/divInt()I
iconst_1
iadd
ireturn
.end method
```



ヒープ (インスタンス置き場)

感想

- はしょった割には，結構疲れた。
- 今回の例は，`Calc().divInt()` 等，インスタンスを変数に保持しないプログラムとなっている。
- よって，インスタンスのリファレンスは，インスタンスメソッドのローカル変数0番以外は，スタックからしか参照してない。