

```
// ptr.cpp.  
int main() {
```

```
    int x;
```

```
    x = 5;
```

```
    cout << "&x:" << &x << endl;
```

```
    int *ptr = nullptr;
```

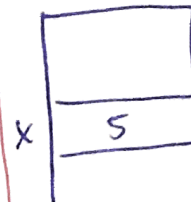
```
    ptr = &x;
```

```
    cout << "ptr:" << ptr << endl;
```

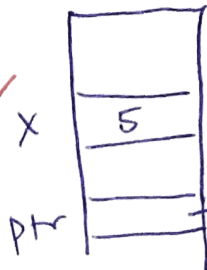
```
    cout << "*ptr:" << *ptr << endl;
```

```
    cout << "&ptr:" << &ptr << endl;
```

stack



Stack



ptr points to location of x :
(0x7fff59b276b8)
→ on stack.

```
    ptr = new int;
```

```
    *ptr = 123;
```

repeat [cout ptr, *ptr, &ptr]

Stack



Heap



ptr points to dynamically allocated memory on heap where 123 is stored
(0x7ff3b14027a0)

```
    delete ptr;
```

```
    ptr = nullptr;
```

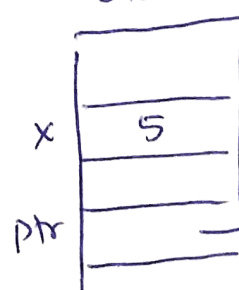
```
    ptr = new int[5];
```

```
    for (int i = 0; i < 5; i++)
```

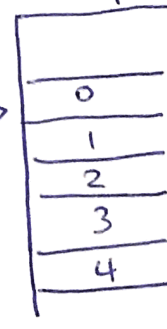
```
        ptr[i] = i;
```

repeat [cout ptr, *ptr, &ptr]

Stack



Heap



ptr points to dynamically allocated memory on heap where array is stored
(0x7ff3b1407b00)

```
    for (int i = 0; i < 5; i++)
```

```
        cout << ptr[i] << endl;
```

```
    return 0;
```

```
}
```