

lab10

[source code](#)

ex 1.1:

```
#include <iostream>

class Circle {
public:
    float radius_;
};

int main()
{
    Circle cir1;
    Circle cir2;
    int rad1 = 12, rad2 = 4;
    cir1.radius_ = rad1;
    cir2.radius_ = rad2;

    std::cout<< cir1.radius_ << " " << cir2.radius_ << "\n";
}
```

output:
12 4

ex 1.2:

```
#include <iostream>

class Circle {
public:
    float radius_;
    Circle(float radius)
    {
        radius_ = radius;
    };
    Circle()
    {
        radius_ = 0;
    }
};

int main()
```

```

{
    Circle cir1;
    Circle cir2;
    float rad1 = 12, rad2 = 4, rad3 = 3.14;
    cir1.radius_ = rad1;
    cir2.radius_ = rad2;

    Circle cir3(rad3);

    std::cout<<cir1.radius_<< ' '
    << cir2.radius_ << " "
    <<cir3.radius_<<std::endl;
}

```

output:
12 4 3.14

ex 1.3:

```

#include <iostream>

class Circle {
public:
    float* radius_;
    Circle(float radius)
    {
        radius_ = &radius;
    };
    Circle()
    {
        radius_ = 0;
    };
    ~Circle()
    {
        // delete radius_;
        std::cout<<"\nCircle destructed\n";
    };
};

int main()
{
    Circle cir1;
    Circle cir2;
    float radius1 = 3.14, radius2 = 2.71;
    float* p_radius1 = &radius1;
    float* p_radius2 = &radius2;
    cir1.radius_ = p_radius1;
    cir2.radius_ = p_radius2;
}

```

```

std::cout << *cir1.radius_ << " " << *cir2.radius_ << "\n";

// std::cout << *cir1.radius_ << " " << *cir2.radius_ << "\n";

}

```

```

output:
3.14 2.71

Circle destructed

Circle destructed

```

ex 1.4:

```

#include <iostream>

#define PI 3.14

class Circle {
public:
    float radius_;
    float area();
    float circumference();
};

float Circle::circumference()
{
    return radius_ * 2 * PI;
};

float Circle::area()
{
    return radius_ * radius_ * PI;
}

int main()
{
    Circle my_circle;
    my_circle.radius_ = 3;

    std::cout<< "radius: " << my_circle.radius_<< "\narea: " <<
my_circle.area() << "\ncircumference: " << my_circle.circumference() <<
"\n";
}

```

```

output:
radius: 3

```

```
area: 28.26
circumference: 18.84
```

ex 1.5:

```
#include <iostream>
using namespace std;

#define PI 3.14

class Circle{
private:
    float radius_;
    float area_;
    float circumference_;

public:
    Circle(float);
    float area()
    {
        return radius_ * radius_ * PI;
    };
    float circumference()
    {
        return radius_ * 2 * PI;
    };
};

Circle::Circle(float radius): radius_(radius), area_(area()),
circumference_(circumference()) {};

int main()
{
    Circle my_circle(3);
}
```

ex 1.6:

```
// ex16.cpp
#include <iostream>
#include "ex1_6_methods_correct.h"
int main()
{
    Circle my_circle(2.71);
    std::cout<< "before: " << my_circle.read_radius() << "\n";
    my_circle.set_radius(3.14);
    std::cout<< "after: " << my_circle.read_radius() << "\n";
}
```

```
}
```

```
// ex1_6_methods_correct.h
class Circle{
private:
    float radius_;
    float area_;
    float circumference_;

public:
    Circle(float);
    void set_radius(float);
    float read_radius();
};
```

```
// ex1_6_methods_correct.cc
#include "ex1_6_methods_correct.h"
Circle::Circle(float radius): radius_(radius) {};

void Circle::set_radius(float radius) {radius_ = radius;};

float Circle::read_radius() {return radius_;};
```

```
output:
before: 2.71
after: 3.14
```