Circles (1) P84786_en

To solve this exercise you will need the definition of *Point* and *distance* () of problem P46254.

Write a procedure

void *move*(*Point*& *p1*, **const** *Point*& *p2*);

that moves the point *p1* according to the coordinates indicated by the point *p2*.

For instance, being *p1* the point $(2, 1)$, and *p2* the point $(-0.5, 4)$. Then *move*(*p1*, *p2*) would do that *p1* was $(1.5, 5)$.

Additionally, using the definition

```
struct Circle {
    Point center;
    double radius;
};
```

write two procedures,

void *scale* (*Circle* & *c*, **double** *sca*);

that scales the circle *c* proportionately to the real strictly positive *sca*, and

void *move*(*Circle*& *c*, **const** *Point*& *p*);

that moves the circle *c* according to the coordinates indicated by *p*.

For instance, being *c* a circle of center $(1, 2)$ and radius 3. Then, *scale* (*c*, 2) would obtain a circle of center $(1, 2)$ and radius 6. However, if *p* is $(3.5, -1)$, *move*(*c*, *p*) would obtain a circle of center $(4.5, 1)$ and radius 3.

Write also a function that prints if a point *p* is inside a circle *c*:

bool *is_inside* (**const** *Point*& *p*, **const** *Circle* & *c*);

Suppose that the radii are always strictly positive, and that *p* will never be exactly in the border of *c*.

Observation

You only need to submit the required classes; your main program will be ignored. Strictly obey the type definitions of the statement.

Problem information

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