```h
#include <iostream>

using namespace std;


class v2d {
private:
    // internal representation of a vector
    double x;
    double y;
public:
    // Standard constructor
    v2d(double, double);

    // Copy constructor
    v2d(const v2d &);

    // Destructor
    ~v2d(void);

    // Assignment - Updates the vector to make it as v
    v2d & operator=(const v2d &);

    // Vector addition - Updates the vector by adding v
    v2d & operator+(const v2d &);

    // Scalar multiplication - Updates the vector by scaling by k
    v2d & operator*(double k);

    // Scalar product of the current vector by another vector
    double operator*(const v2d &);

    // computes the length of a vector
    double length(void);

    friend std::ostream& operator<<(std::ostream &, const v2d &);
};
```