Problem: Find the midpoint of a given line.  
  
Sample:

|  |  |
| --- | --- |
| Input | Output |
| 2/1 2/1 6/1 6/1 0/1 5/2 0/1 3/2 | 4/1 4/1  0/1 4/2  (no need to show in reduced format) |

Steps:

1. Define a class Fraction with two public attribute **NUMERATOR** and **DENOMINATOR.**
2. Define a function Fraction addFraction(Fraction a) that will return another fraction that is sum of fraction a and the caller Fraction.

(3/5, 5/10) → (3\*10+5\*5)/50 → 55/50 [no need to think of reduced form]

1. Define a function Fraction divFraction(int n) that will return the fraction after dividing the caller Fraction by n.  
     
   (2/4, 2) → (2/8) [no need to think of reduced form]

1. Define a class Point with two private attribute x & y, where both are Fraction.
2. Define a class Line with two public attribute start & end, where both are Point.
3. Define a function Point midPoint() that will return mid point of the caller line. Use the functions you defined in step 2 & 3.

Problem: Find If a point in a line or not.

1. Define a friend function bool contains(Line l, Point p), check if Point p contains l or not.

Problem: Find the Intersection of two lines.

1. Define a function bool intersection(Line l, Point& p), that check if line l intersect with caller fraction or not. If intersects p contains the intersecting point.