Java
Design Question Worksheet #2

Name -
Period -

An `APLine` is a line defined by the equation $ax + by + c = 0$, where a is not equal to zero, b is not equal to zero, and a, b, and c are all integers. The slope of an `APLine` is defined to be the `double` value $-a/b$. A point (represented by integers x and y) is on an `APLine` if the equation of the `APLine` is satisfied when those x and y values are substituted into the equation. That is, a point represented by x and y is on the line if $ax + by + c$ is equal to 0. Examples of two `APLine` equations are shown in the following table.

Equation	**Slope ($-a$ / b)**	**Is point (5, -2) on the line?**
$5x + 4y - 17 = 0$	-5 / 4 = -1.25	Yes, because $5(5) + 4(-2) + (-17) = 0$
$-25x + 40y + 30 = 0$	25 / 40 = 0.625	No, because $-25(5) + 40(-2) + 30 \neq 0$

Assume that the following code segment appears in a class other than `APLine`. The code segment shows an example of using the `APLine` class to represent the two equations shown in the table.

```
APLine line1 = new APLine(5, 4, -17);
double slope1 = line1.getSlope();          // slope1 is assigned -1.25
boolean onLine1 = line1.isOnLine(5, -2); // true because 5(5) + 4(-2) + (-17) = 0


APLine line2 = new APLine(-25, 40, 30);
double slope2 = line2.getSlope();          // slope2 is assigned 0.625
boolean onLine2 = line2.isOnLine(5, -2); // false because -25(5) + 40(-2) + 30 ≠ 0
```

Write the `APLine` class. Your implementation must include a constructor that has three integer parameters that represent a, b, and c, in that order. You may assume that the values of the parameters representing a and b are not zero. It must also include a method `getSlope` that calculates and returns the slope of the line, and a method `isOnLine` that returns `true` if the point represented by its two parameters (`x` and `y`, in that order) is on the `APLine` and returns `false` otherwise. Your class must produce the indicated results when invoked by the code segment given above. You may ignore any issues related to integer overflow.