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\* A simple program that solves basic linear equation problems

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\* School:Sir Winston Churchill High School, Calgary, Alberta, Canada

\* Language: Java SE 7.0Target Operating System: Java Virtual Machine

\* System:Intel Celeron 3GHz running under Windows 7 IDE: Eclipse 4.2

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**LinearFunctions interface**

**package** linear;

**public** **interface** LinearFunctionMethods {

**double** getSlope();

**double** getYintercept();

**double** getRoot();

**double** getYvalue(**double** x);

**double** getXvalue(**double** y);

}

**Linear class**

**package** linear;

**public** **class** LinearClass **implements** LinearFunctionMethods {

**public** LinearClass(**double** slopes, **double** yIntc) {

slope = slopes;

intc = yIntc;

}

@Override

**public** **double** getSlope() {

// **TODO** Auto-generated method stub

**return** slope;

}

@Override

**public** **double** getYintercept() {

// **TODO** Auto-generated method stub

**return** intc;

}

@Override

**public** **double** getRoot() {

**double** root = -(intc/slope);

**return** root;

}

@Override

**public** **double** getYvalue(**double** x) {

**double** y = (slope\*x + intc);

**return** y;

}

@Override

**public** **double** getXvalue(**double** y) {

**double** x = (y-intc)/slope;

**return** x;

}

**public** **double** slope;

**public** **double** intc;

}

**Tester**

**package** linear;

**import** java.util.Scanner;

**public** **class** Tester {

**public** **static** **void** main(String[] args) {

Scanner kbReader = **new** Scanner(System.*in*);

System.*out*.print("What is the slope of your line?");

**double** slope = kbReader.nextDouble();

System.*out*.print("What is the y-intercept of your line");

**double** yIntc = kbReader.nextDouble();

LinearClass line = **new** LinearClass(slope, yIntc);

System.*out*.println("\nSlope of this line is: " + line.getSlope());

System.*out*.println("\nY-intercept of this line is: " + line.getYintercept());

System.*out*.println("Root of this line is: " + line.getRoot());

System.*out*.print("\nWhat is an x value for which you wish to solve for y?");

**double** x = kbReader.nextDouble();

**double** yValue = line.getYvalue(x);

System.*out*.println("The y value corresponding to x = " + x + " is "+ yValue);

System.*out*.print("\nWhat is a y value for which you wish to solve for x? ");

**double** y = kbReader.nextDouble();

**double** xValue = line.getXvalue(y);

System.*out*.println("The x value corresponding to y = " + y + " is "+ xValue);

kbReader.close();

}

}

**Output**

What is the slope of your line?2

What is the y-intercept of your line-1

Slope of this line is: 2.0

Y-intercept of this line is: -1.0

Root of this line is: 0.5

What is an x value for which you wish to solve for y?-5

The y value corresponding to x = -5.0 is -11.0

What is a y value for which you wish to solve for x? 6

The x value corresponding to y = 6.0 is 3.5