Java Reference Sheet

Methods available in ConsoleProgram

```
int readInt(String prompt)
double readDouble(String prompt)
String readLine(String prompt)
void println(what-to-print)
```

GObject Common Methods

```
double getX()
double getY()
double getWidth()
double getHeight()
void move(double dx, double dy)
void setLocation(double x, double y)
void setColor(Color c)
```

Methods available in GraphicsProgram

```
void add(GObject obj)
void remove(GObject obj)
void removeAll()
void addMouseListeners()
int getWidth()
int getHeight()
GObject getElementAt(double x, double y)
void pause(double milliseconds)
```

GObject Constructors

```
new GRect(double x, double y,
          double width, double height)
new GOval(double x, double y,
          double width, double height)
new GLine(double x0, double y0,
          double x1, double y1)
new GLabel(String text)
```

Event Handlers

```
void mousePressed(MouseEvent e)
void mouseReleased(MouseEvent e)
void mouseClicked(MouseEvent e)
void mouseMoved(MouseEvent e)
void mouseEntered(MouseEvent e)
void mouseExited(MouseEvent e)
```

Fillable Object Methods

```
void setFilled(boolean isFilled)
void setFillColor(Color fillColor)
```

RandomGenerator Methods

```
RandomGenerator getInstance()
int nextInt(int low, int hi)
double nextDouble(double low, double hi)
boolean nextBoolean(double probability)
Color nextColor()
```

GLabel Methods

```
void setFont(String fontString)
double getAscent()
double getDescent()
```

String Methods

```
char charAt(int index)
int length()
boolean equals(String other)
```

MouseEvent Methods

```
int getX()
int getY()
```

Karel Reference Sheet

SuperKarel Commands

```
move();
turnLeft();
turnRight();
turnAround();
pickBeeper();
putBeeper();
```

SuperKarel Predicates

```
frontIsClear();
frontIsBlocked();
leftIsClear();
leftIsBlocked();
rightIsClear();
rightIsBlocked();
beepersPresent();
noBeepersPresent();
beepersInBag();
noBeepersInBag();
facingNorth();
notFacingNorth();
facingEast();
notFacingEast();
facingSouth();
notFacingSouth();
facingWest();
notFacingWest();
```

Permitted Control Structures

```
for (int i = 0; i < N; i++) {
    …
}

if (condition) {
    …
}

if (condition) {
    …
} else {
    …
}

while(condition) {
    …
}
```

The loop counter in a `for` loop may not be accessed or read. No other variables may be declared. You may not use the `return` or `break` statements.