

Sample Final Exam #1 Key

- 1.
- | <u>Call</u> | <u>Final Contents of Array</u> |
|---|-----------------------------------|
| <code>int[] a1 = {7};
arrayMystery(a1);</code> | <code>{7}</code> |
| <code>int[] a2 = {4, 3, 6};
arrayMystery(a2);</code> | <code>{4, 2, -2}</code> |
| <code>int[] a3 = {7, 4, 8, 6, 2};
arrayMystery(a3);</code> | <code>{7, 4, -2, -5, -3}</code> |
| <code>int[] a4 = {10, 2, 5, 10};
arrayMystery(a4);</code> | <code>{10, 9, 6, -1}</code> |
| <code>int[] a5 = {2, 4, -1, 6, -2, 8};
arrayMystery(a5);</code> | <code>{2, -1, 2, -1, 5, 2}</code> |
- 2.
- ```
14 14
7 9 14 2
18 18
7 9 14 18
```
- 3.
- ```
b
c 1
a 2 c 1

b
c 1
b 2 c 2

c
c 1
c 2

b
d 1 b 2 c 2
b 2 c 2
```
- 4.
- ```
public static void printStrings(Scanner input) {
 while (input.hasNextInt()) {
 int times = input.nextInt();
 String word = input.next();
 for (int i = 0; i < times; i++) {
 System.out.print(word);
 }
 System.out.println();
 }
}
```

5.

```
public static void reverseLines(Scanner input) {
 while (input.hasNextLine()) {
 String text = input.nextLine();
 for (int i = text.length() - 1; i >= 0; i--) {
 System.out.print(text.charAt(i));
 }
 System.out.println();
 }
}
```

6.

```
public static boolean isAllEven(int[] list) {
 for (int i = 0; i < list.length; i++) {
 if (list[i] % 2 != 0) {
 return false;
 }
 }
 return true;
}
```

7.

```
public static boolean isUnique(int[] list) {
 for (int i = 0; i < list.length; i++) {
 for (int j = i + 1; j < list.length; j++) {
 if (list[i] == list[j]) {
 return false;
 }
 }
 }
 return true;
}
```

8.

```
import java.awt.*; // for Color
import java.util.*; // for Random

public class Ostrich extends Critter {
 private Random rand;
 private int steps;
 private boolean west; // true if going west; false if east
 private boolean hiding;

 public Ostrich() {
 rand = new Random();
 hiding = true;
 steps = 0;
 west = rand.nextBoolean(); // or call nextInt(2) and map 0=false, 1=true
 }

 public Color getColor() {
 if (hiding) {
 return Color.CYAN;
 } else {
 return Color.WHITE;
 }
 }

 public Direction getMove() {
 if (steps == 10) {
 steps = 0; // Pick a new direction and re-set the steps counter
 hiding = !hiding;
 west = rand.nextBoolean();
 }

 steps++;
 if (hiding) {
 return Direction.CENTER;
 } else if (west) {
 return Direction.WEST;
 } else {
 return Direction.EAST;
 }
 }
}
```

9. Two solutions are shown.

```
public int compareTo(Date other) {
 if (month < other.month || (month == other.month && day < other.day)) {
 return -1;
 } else if (month == other.month && day == other.day) {
 return 0;
 } else {
 return 1;
 }
}

public int compareTo(Date other) {
 if (month == other.month) {
 return day - other.day;
 } else {
 return month - other.month;
 }
}
```