

CSE 142 Section Handout #2 Problems

Expressions

(more practice: Ch. 2 self-checks 3-5)

1. **Self-Check 2.3-5, p124-125.** Compute the value of each expression below.

Be sure to list a literal of appropriate type (e.g., 7.0 rather than 7 for a double, string literals in quotes).

	Expression		Expression
a	$4 * 3/8 + 2.5 * 2$	q	$(2.5 + 3.5)/2$
b	$26 \% 10 \% 4 * 3$	r	$9/4 * 2.0 - 5/4$
c	$(5 * 7.0/2 - 2.5)/5 * 2$	s	$3 * 4 + 2 * 3$
d	$12/7 * 4.4 * 2/4$	t	$177 \% 100 \% 10/2$
e	<code>"hello 34 " + 2 * 4</code>	u	$9/2.0 + 7/3 - 3.0/2$
f	<code>"2 + 2 " + 3 + 4</code>	v	$813 \% 100/3 + 2.4$
g	$3 + 4 + " 2 + 2"$	w	$27/2/2.0 * (4.3 + 1.7) - 8/3$
h	$41 \% 7 * 3/5 + 5/2 * 2.5$	x	$89 \% (5 + 5) \% 5$
i	$22 + 4 * 2$	y	$4.0/2 * 9/2$
j	$10.0/2/4$	z	$392/10 \% 10/2$
k	$23 \% 8 \% 3$	aa	$53/5/(0.6 + 1.4)/2 + 13/2$
l	$17 \% 10/4$	bb	$8 * 2 - 7/4$
m	$8/5 + 13/2/3.0$	cc	$37 \% 20 \% 3 * 4$
n	$12 - 2 - 3$	dd	$2.5 * 2 + 8/5.0 + 10/3$
o	$6/2 + 7/3$	ee	$2 * 3/4 * 2/4.0 + 4.5 - 1$
p	$6 * 7\%4$	ff	$89 \% 10/4 * 2.0/5 + (1.5 + 1.0/2) * 2$

Variables

(more practice: Ch. 2 self-checks 12-14, 16-17)

2. **Self-Check 2.17, p127.** What is the output from the following code?

```
int max;
int min = 10;
max = 17 - 4 / 10;
max = max + 6;
min = max - min;
System.out.println(max * 2);
System.out.println(max + min);
System.out.println(max);
System.out.println(min);
```

3. What are the values of a, b, and c after the following code? (What is the code really doing?)

```
int a = 2;
int b = 3;
int c = 4;
a = a * b * c;
b = a / b / c;
c = a / b / c;
a = a / b / c;
```

Problems (continued)

CSE 142 Section Handout #2

for Loop Tables

(more practice: Ch. 2 self-checks 22-23)

4. **Self-Check 2.22, p128.** Assume that you have a variable called `line` that will take on the values 1, 2, 3, 4, and so on. You are going to formulate expressions in terms of `line` that will yield different sequences. The first row is filled in for you as an example. Fill in the table below, indicating an expression that will generate each sequence.

<code>line</code> value	Sequence	Expression
1, 2, 3, 4, 5, 6	2, 4, 6, 8, 10, 12, ...	<code>2 * line</code>
1, 2, 3, 4, 5, 6, ...	4, 19, 34, 49, 64, 79, ...	
1, 2, 3, 4, 5, 6, ...	30, 20, 10, 0, -10, -20, ...	
1, 2, 3, 4, 5, 6, ...	-7, -3, 1, 5, 9, 13, ...	

Nested for Loops

(more practice: Ch. 2 self-checks 29-33; exercises 4-10, 12-16)

5. **Self-Check 2.30, p130.** What output is produced by the following program?

```
public class Loops {
    public static void main(String[] args) {
        for (int i = 1; i <= 10; i++) {
            for (int j = 1; j <= 10 - i; j++) {
                System.out.print(" ");
            }
            for (int j = 1; j <= 2 * i - 1; j++) {
                System.out.print("*");
            }
            System.out.println();
        }
    }
}
```

6. **Exercise 2.20, p136.** Write a static method named `drawFigure` that produces the following output using for loops for structure.

```
////////////////////////\////////////////////////////////
////////////////////////*****\////////////////////////////////
////////////////////////*****\////////////////////////////////
//////*****\////////////////////////////////
*****
```

CSE 142 Section Handout #2 Problems (continued)

Class Constants

(more practice: Ch. 2 self-check 36 & 38; exercises 11, 17- 24)

7. **Self-Check 2.36, p132.** Assume that you have a variable called `line` that will take on the values 1, 2, 3, 4, and so on, and a class constant named `SIZE` that takes one of two values. You are going to formulate expressions in terms of `line` and `SIZE` that will yield different sequences of numbers of characters. The first row is filled in for you as an example. Fill in the table below, indicating an expression that will generate each sequence.

line value	constant SIZE value	Number of characters	Expression
1, 2, 3, 4, 5, 6, ...	1	4, 6, 8, 10, 12, 14, ...	<code>2 * line + 2</code>
1, 2, 3, 4, 5, 6, ...	2	6, 8, 10, 12, 14, 16, ...	<code>2 * line + 4</code>
1, 2, 3, 4, 5, 6, ...	SIZE	---	<code>2 * line + (2 * SIZE)</code>
1, 2, 3, 4, 5, 6, ...	3	13, 17, 21, 25, 29, 33, ...	
1, 2, 3, 4, 5, 6, ...	5	19, 23, 27, 31, 35, 39, ...	
1, 2, 3, 4, 5, 6, ...	SIZE	---	
1, 2, 3, 4, 5, 6, ...	4	10, 9, 8, 7, 6, 5, ...	
1, 2, 3, 4, 5, 6, ...	9	20, 19, 18, 17, 16, 15, ...	
1, 2, 3, 4, 5, 6, ...	SIZE	---	

8. **Exercise 2.21, p136.** Modify your `drawFigure` method from the previous exercise so that it uses a class constant for the figure's size. The previous output used a constant size of 5. Here is the output for a constant size of 3:

```

////////\\\\\\\
///*****\
*****

```

Here is the output for a constant size of 7:

```

//////////\\\\\\\
//////////*****\
//////////*****\
//////////*****\
//////////*****\
//////////*****\
//////////*****\

```

CSE 142 Section Handout #2 Style Sheet

Consider the following program:

```
public static void method() {
    for (int a = 1; a <= SIZEOFFIGURE; a++) {
        for (int b = 1; b <= -1 * a + SIZEOFFIGURE; b++) {
            System.out.print("+");
        }
        for (int c = 1; c <= 1; c++) {
            System.out.print("/");
        }
        for (int d = 1; d <= a - 1; d++) {
            System.out.print("+");
        }
        System.out.println("");
    }
}
```

`SIZEOFFIGURE` is a class constant declared earlier in the program. When `SIZEOFFIGURE` holds the value 4, this method produces the following output:

```
+++/  
++/+  
+/  
/+++
```

While this method would receive full external correctness, by producing the desired output, it would not receive full internal correctness. List all style issues that you can find.