

Flowchart Practice Worksheet

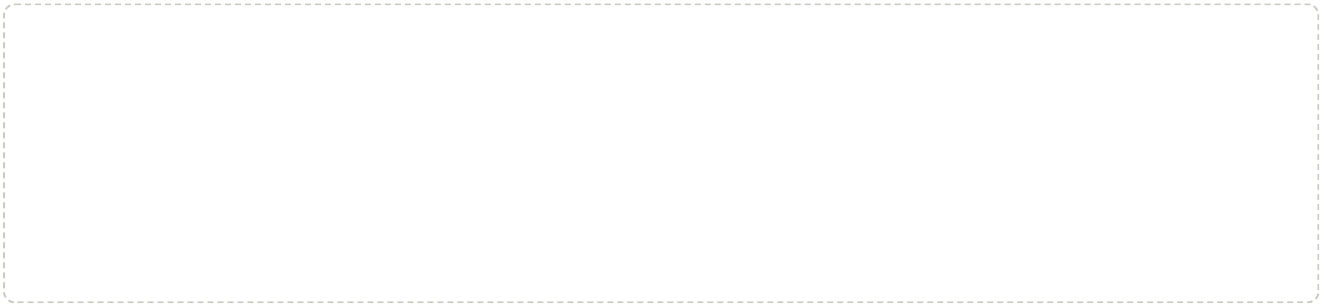
Draw the flowchart for each problem, then write the Java code. Swap papers with a classmate and check each other using the answer key at the end.

Name: _____ Score: _____ / 11

Part A: Draw the flowchart

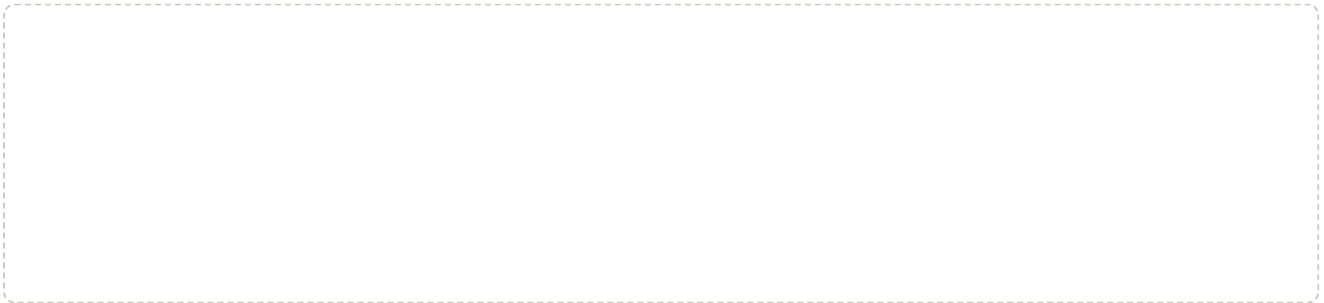
1 · SEQUENCE

Input two numbers and print their sum.



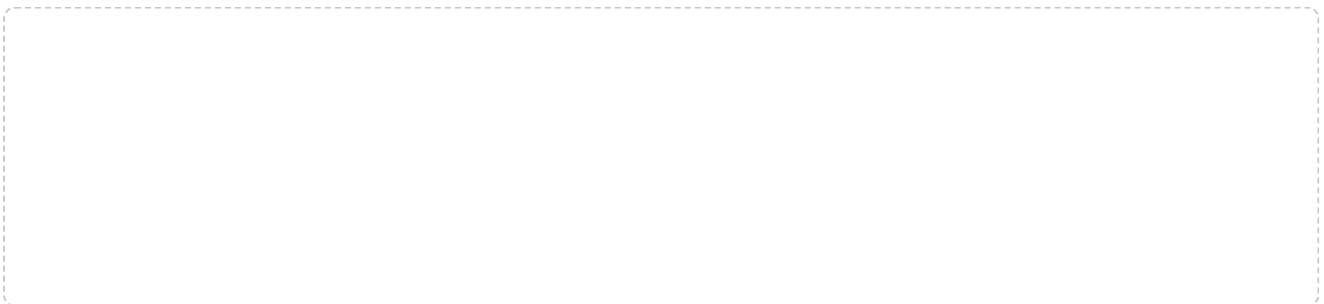
2 · IF-ELSE

Input a whole number. Print "Even" if it is even, otherwise "Odd".



3 · IF-ELSE-IF

Input an age. Print "Minor" if below 18, "Adult" if 18 to 59, and "Senior" if 60 or above.



4 · WHILE

Print the numbers 10 down to 1 using a `while` loop.

5 · FOR

Compute and print the sum of the even numbers from 2 to 20 using a `for` loop.

6 · DO-WHILE

Keep asking for a password until the user types `java123`, then print `"Welcome!"`.

7 · SENTINEL

Input numbers until `-1` is entered. Print how many numbers were entered (don't count the `-1`).

8 · SELECTION

Input three numbers and print the largest.

Part B: Trace the code (write the output)

9

```
int x = 3;
while (x <= 12) {
    System.out.print(x + " ");
    x = x + 4;
}
```

Output: _____

10

```
int total = 0;
for (int i = 5; i >= 1; i--) {
    if (i == 3) continue;
    total += i;
}
System.out.println(total);
```

Output: _____

11

```
int k = 100;
do {
    k = k / 2;
} while (k > 10);
System.out.println(k);
```

Output: _____

Answer Key

Flowcharts are written as text: (Start) terminal, /.../ input/output, [...] process, <...?> decision. Different but correct flowcharts are fine, as long as the logic is the same.

1 · Sum of two numbers

(Start) → /Input a, b/ → [sum = a + b] → /Print sum/ → (End)

```
int a = sc.nextInt();
int b = sc.nextInt();
int sum = a + b;
System.out.println(sum);
```

2 · Even or odd

(Start) → /Input n/ → <n % 2 == 0?>
True → /Print "Even"/ ↙
False → /Print "Odd"/ → (End)

```
int n = sc.nextInt();
if (n % 2 == 0) System.out.println("Even");
else System.out.println("Odd");
```

3 · Age group

(Start) → /Input age/ → <age < 18?>
True → /Print "Minor"/ —————
False → <age < 60?> |
True → /Print "Adult"/ —————
False → /Print "Senior"/ —————→ (End)

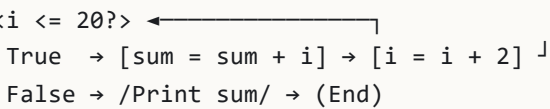
```
if (age < 18) System.out.println("Minor");
else if (age < 60) System.out.println("Adult");
else System.out.println("Senior");
```

4 · Count down 10 to 1

(Start) → [i = 10] → <i >= 1?> ←—————
True → /Print i/ → [i = i - 1] ↙
False → (End)

```
int i = 10;
while (i >= 1) {
    System.out.println(i);
    i--;
}
```

5 · Sum of evens 2 to 20 (answer: 110)

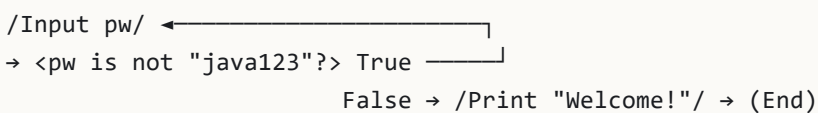
(Start) → [sum = 0, i = 2] → <i <= 20?> 

True → [sum = sum + i] → [i = i + 2] ↵

False → /Print sum/ → (End)

```
int sum = 0;
for (int i = 2; i <= 20; i += 2) {
    sum += i;
}
System.out.println(sum); // 110
```

6 · Password (do-while)

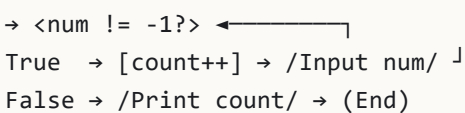
(Start) → /Input pw/ 

→ <pw is not "java123"?> True ↵

False → /Print "Welcome!/" → (End)

```
String pw;
do {
    pw = sc.nextLine();
} while (!pw.equals("java123"));
System.out.println("Welcome!");
```

7 · Count until -1 (sentinel)

(Start) → [count = 0] → /Input num/ → <num != -1?> 

True → [count++] → /Input num/ ↵

False → /Print count/ → (End)

```
int count = 0;
int num = sc.nextInt();
while (num != -1) {
    count++;
    num = sc.nextInt();
}
System.out.println(count);
```

8 · Largest of three

(Start) → /Input a, b, c/ → [max = a] → max?>

True → [max = b] ↘

False → <c > max?>

True → [max = c] ↘

False → /Print max/ → (End)

```
int max = a;  
if (b > max) max = b;  
if (c > max) max = c;  
System.out.println(max);
```

Part B answers

9. 3 7 11. x goes 3 → 7 → 11 → 15, and 15 ≤ 12 is false.

10. 12. 5 + 4 + 2 + 1 = 12 (3 is skipped by continue).

11. 6. k goes 100 → 50 → 25 → 12 → 6 (integer division). 6 > 10 is false.