

What Does This Program do - Worksheet

1. 02-03 C1 What Does This Program Do - Branching

When the following program is run, what value is printed?

```
A = 1: B = 2: C = 3: D = 4
If A + C = D then D = D - 2
If 2 * D + 4 * A < 10 then A = A + 4
If A + D > 3 * B + C then B = C - A
If B < C then C = B
Print A + B + C + D
```

3. 02-03 C3 What Does This Program Do – 1D Arrays

Array A initially contains 7,4,2,5,8,3,6,1 in A(1) through A(8).
What are the contents of the array after the following program is executed?

```
N= 8
FOR J = 1 TO N - 1
IF A(J) > A(J+1) THEN A(J) = A(J) + 1 ELSE A(J + 1) = A(J) - 1
NEXT J
FOR K = 1 TO N - 1
IF 2 * A(K) = A(K + 1 ) THEN A(K) = 0
NEXT K
END
```

A(1) =
A(2) =
A(3) =
A(4) =
A(5) =
A(6) =
A(7) =
A(8) =

5. 03-04 C1 What Does this Program Do – Branching

Print the value of G after the following program is executed.

```
A = 36: B = 4: C = 5
D = A / B + C
E = (2 * D + 2) / C
IF E > B THEN B = E ELSE E = 3 * B
F = A / (B - 1) * C
IF F / 2 = INT (F/2) THEN F=F+1 ELSE F = (F-1) / 2
G = F * B * E
PRINT G
```

9. 04-05 C1 What Does this Program Do - Branching

Print the values of A, B and C after the following program is executed.

```
A = 10: B = 2: C = 6
IF 2*C > A THEN A = C + B ELSE A = C - B
IF B + A > C THEN C = 2*A ELSE C = 2*B
IF (A < B) AND (B > C) THEN B = C - A ELSE B = C + A
IF (B + A > C) OR (C + A > B) THEN PRINT A, B, C: END
A = A + 1: B = B + 2: C = C + 3
PRINT A, B, C: END
```

13. 05-06 C1 What Does this Program Do – Branching

What value of D is printed after this program is run?

```
A = 100: B = 10: C = 5: D = 2
IF (A / (B * C)) < D THEN A = A/2 ELSE B = B + 2
IF (A + 2 * B) >= (C * D) ^ 2 THEN C = 2 * C ELSE D = D ^ 2
IF (A - C ^ 2) >= (B * D ^ 2) THEN A = A/2 ELSE D = D * C
IF ((A*B)/C) < (B*C)/D THEN B=B/2 ELSE C= C ^ 2
IF (A>B) OR (C<D) THEN A=A/2 ELSE C=C+4
IF (A<C) AND (B>D) THEN B=2*B ELSE D=D+1
PRINT D
END
```

17. 06-07 C1 What Does this Program Do – Branching

After the following program is run, what are the values of the four program variables?

```
A=1: B=2: C=5: D=12
IF (A+C) > (D/B) THEN C=C+B ELSE A=2*D
IF (D-B) <= (4*A) THEN B=B+4 ELSE D=D/2
IF (A*C) > (B*D) THEN A=A*C ELSE D=B*D
IF (A>B) OR (C<D) THEN A=B-1 ELSE C=D-2
```

21. 07-08 C1 What Does this Program Do – Branching

What are the final values of A, B, C, D, and E after this program is run?

```
A = 4: B = 3: C = 12: D = 2: E = 6
IF C/E > A/D THEN A = D ELSE C = E
IF (A > B) AND (C > E) THEN B = C ELSE D = A
IF A + B = C THEN E = 2 * A ELSE A = B + C
A = C - D: B = E - A: C = B - E: D = C - A: E = B - D
IF (A > 0) OR (B < 0) THEN B = A*B ELSE A = 2 * A
IF (E + D < C) AND (D < B) THEN C = D - A ELSE D = 2*E
PRINT A, B, C, D, E
```

25. 08-09 C1 What Does this Program Do – Branching

What are the final values of A, B, C, and D after this program is run?

```
A = 1: B = 2: C = 4: D = 8
IF A+D > B*C THEN A = 2 * A ELSE C = C - 2
IF A * C - 1 < D + B THEN B = D + 2 ELSE D = B - A
IF 3 * C > B - A THEN A = B ELSE C = D
IF (A > B) OR (D > C) THEN A = C ELSE B = D
IF (A - D > 0) AND (B < C) THEN D = C + 1 ELSE B = A - 2
END
```

29. 09-10 C1 What Does this Program Do – Branching

After this program is executed, what was printed?

```
10 A = 12: B = 6: C = 3: D = 2
20 IF A/B > B/D THEN A = A - 3 ELSE B = B + 3
30 IF A + D > B + C THEN D = 2 * D ELSE C = C + A
40 IF (B > C) AND (D < A) THEN A = A * 2 ELSE D = D - 4
50 IF (A + C < D) OR (B + D > C) THEN C = 2*C-3 ELSE B=B/2
60 PRINT (A + C)/B + D
70 END
```

33. 10-11 C1 What Does this Program Do – Branching

What is printed when this program is run?

```
A = 100: B = 2: C = 50: D = 5
IF A > 4 * C THEN A = 2 * A ELSE C = C * 2
IF A / D < C / B THEN A = A + D ELSE C = C + B
IF A - B <= C - D THEN B = C ELSE A = D
IF B * C <= A * D THEN B = D ELSE A = C
IF B + D > A + C THEN B = A + C ELSE C = B + D
PRINT A / D + B * C
END
```

37. 11-12 C1 What Does this Program Do – Branching

What is printed when this program is run?

```
A = 1: B = 2: C = 3: D = 4
IF A + D > 2 * B THEN A = B * D
C = A - D
IF B + C < D THEN D = D + 3
B = C * D
IF C * D < 40 THEN B = B * B
A = A - 5
IF D - A > 0 THEN C = B - C
D = D + A
PRINT A, B, C, D
END
```

41. 12-13 C1 What Does this Program Do – Branching

What is printed when this program is run?

```
a = 20: b = 5: c = 2
d = a / b
e = c ^ 2 * a / b
if e > a then a = e - a
if d / 2 = int(d / 2) then b = a / c
if b = e then e = e - 2 else b = 2 * b
if d * c < a * b then a = d - c else c = d + c
print (c+d)/a-b/a+e
end
```

45. **13-14 C1 What Does this Program Do – Branching**

What is printed when this program is run?

```
a = 100: b = 10: c = 5: d = 4: e = 2
if b * c > c * d then b = c * d else c = b * c
if a / b = b / d then a = a / b else b = b * d
if a+d > b/e then e = d*e else d = d/e
if a * e > c ^ e then b = a - e else c = b - c
print a + b * c - d / e
end
```

49. **14-15 C1 What Does this Program Do – Branching**

What is printed when this program is run?

```
a = 24: b = 8: c = -1: d = 2: e = 0
if a > b then a = a - b
if c + d >= b * e then c = c + d
if e * c <= 0 then e = e + 2 else e = e - 2
if d^2 < c^3 then d = d + c else c = c - d
if ((a<c) and (b>d)) then e = a * c else e = d * d
if ((b - c > a - d) or (a/2 = int(a/2))) then a = a + e else b = b + d
print a / e + b * c - d + b / 2
end
```

53. **15-16 C1 What Does this Program Do – Branching**

What is printed when this program is run?

```
a = 4: b = 10: c = 1: d = 2
if a <= b then a = a + b
if c * d >= a then b = b + c else c = c - d
if a / b <= 1 then a = c + a else b = d + b
if d ^ c < c ^ d then c = d else d = c
if ((a > b) or (c < d)) then b = a - b else c = d + c
print a / b + c * (a * b - c / d) / b
end
```