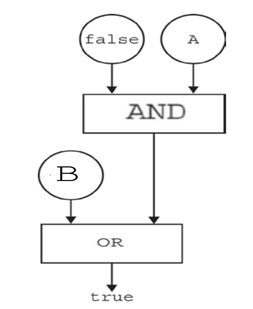
1. Which of the following expressions returns false?
2. true AND false
3. NOT (true OR false)
4. false OR (true OR false)
   1. III only
   2. I only
   3. II only
   4. I and II
5. The figure below shows a circuit composed of two logic gates. The output of the circuit is true.



Which of the following is a true statement about input A and B?

(A) Input A must be true regardless of Input B’s value.

(B) Input A must be false regardless of Input B’s value.

(C) Input A can be either true or false if Input B is true.

(D) There is no possible value of Input A or Input B that will cause the circuit to have the output true.

3. The figure below shows a circuit composed of two logic gates. The output of the circuit is false.

false

A

OR

OR

B

true

Which of the following is a true statement about inputs A and B?

1. Both inputs must be false
2. At least one input must be true
3. Both inputs must be true
4. None of the above

4. Determine the values of:

NOT TRUE

A AND FALSE

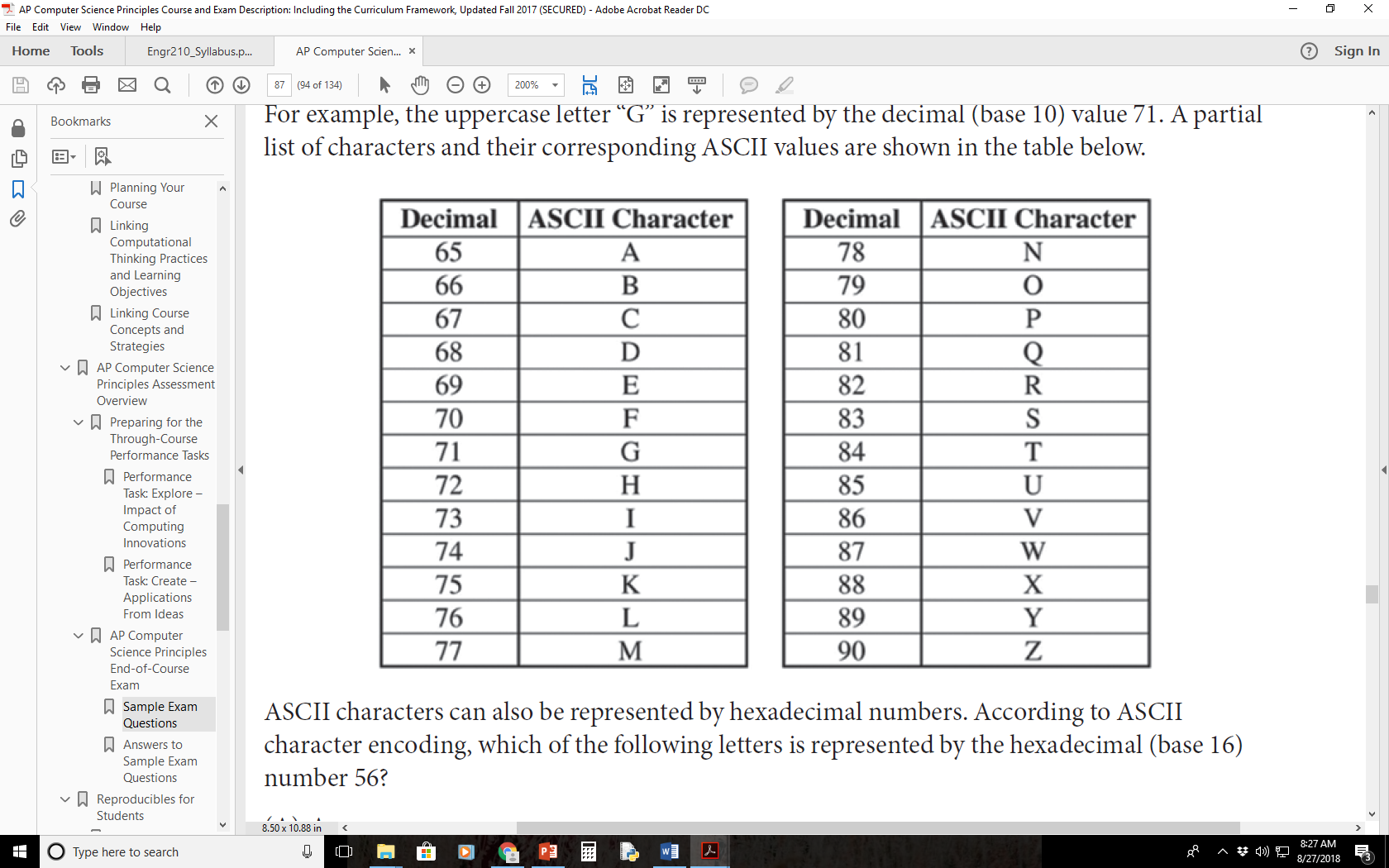
A OR FALSE

A OR A

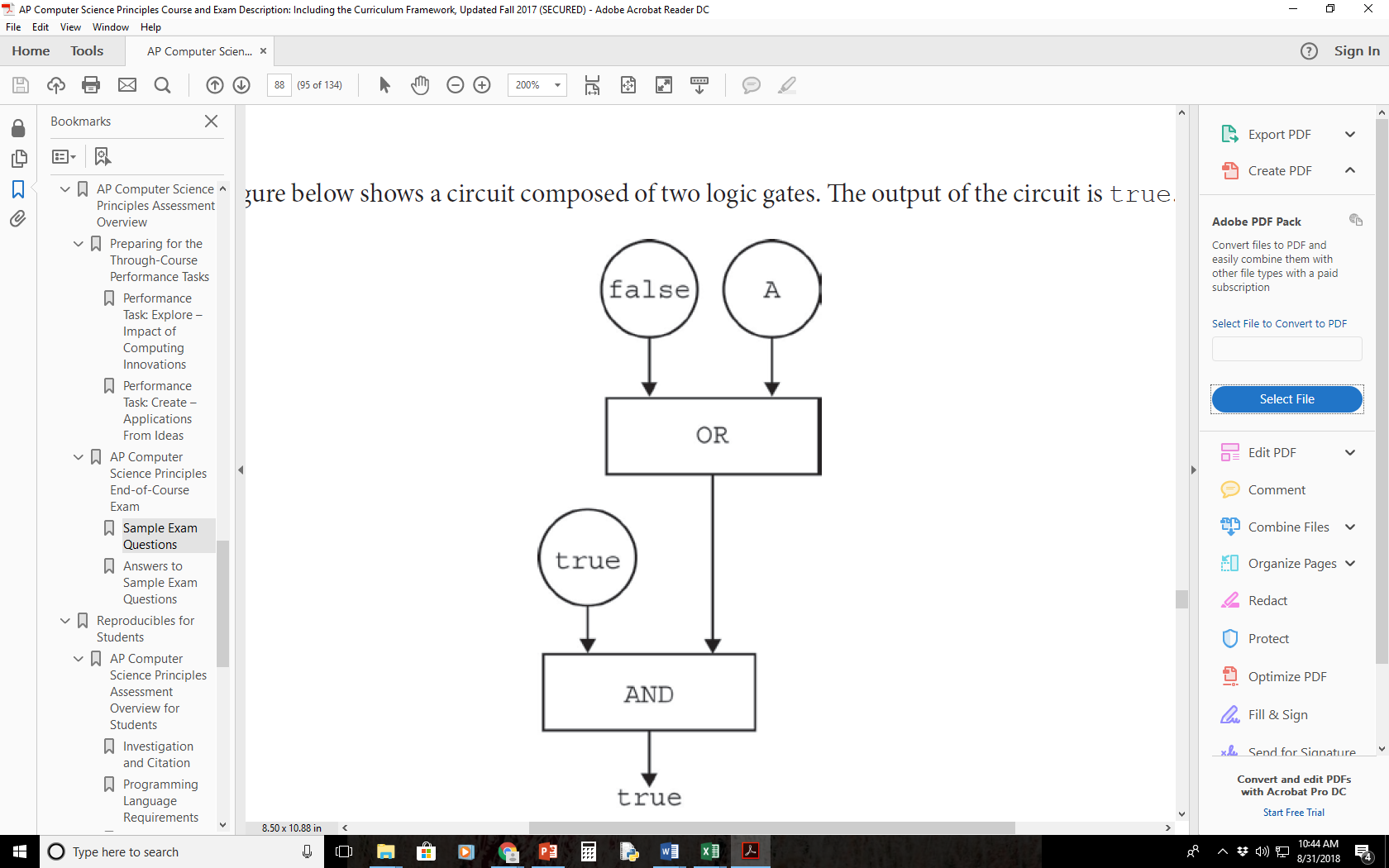
The values are:

* 1. TRUE, FALSE, A and A respectively
  2. FALSE , FALSE, FALSE and A respectively
  3. FALSE, FALSE, A and A respectively
  4. TRUE, FALSE, A and A respectively

1. What ASCII character does the hex number represent?



1. J
2. K
3. L
4. M
5. The figure below shows a circuit composed of two logic gates. The output of the circuit is true.



NOR

Which of the following is a true statement about input A?

1. Input A must be true
2. Input A must be false
3. Input A can be either true or false
4. There is no possible value of input A that will cause the circuit to have an output of false.
5. Assume that p, q, and r are boolean variables. Consider the following expression.

NOT((p OR q) AND (q OR NOT r))

Which of the following expressions is equivalent to the given expression?

A. (p OR q) AND (p OR NOT r) AND (q) AND (q OR NOT r)

B. (NOT p AND NOT q) OR (NOT p AND r) OR (NOT q) OR (NOT q AND r)

C. (NOT p OR NOT q) AND (NOT q OR r)

D. (NOT p AND NOT q) OR (NOT q AND r)

1. Assume that p, q, and r are boolean variables. Consider the following expression.

NOT ((p AND NOT q) OR r)

Which of the following expressions is equivalent to the given expression?

A. (p AND r) OR (NOT q AND r)

B. (NOT p AND NOT q) OR (NOT p AND r)

C. (NOT p OR q) AND NOT r

D. (NOT p AND q) OR NOT r

1. The diagram below shows a circuit composed of three logic gates. Each gate takes two inputs and produces a single output.

For which of the following input values will the circuit have an output of false? Select TWO answers.

1. A = true B = false C = true D = false
2. A = false B = false C = false D = false
3. A = false B = false C = true D = false
4. A =true B = false C = false D = false
5. The diagram below shows a circuit composed of two logic gates labeled OR and NOR. Each gate takes two inputs and produces a single output.

If A and C are both false, which of the following best describes the output of the NOR gate?

* 1. The output will be true no matter what B is
  2. The output will be false no matter what B is
  3. The output will be the opposite of B
  4. No determination can be made from the information given

1. Simplify completely

A AND NOT A OR B OR NOT B

a. true

b. false

c. A

d. B

1. Two of the statements below are true about linear searching. Select the two true statements.

a. the search works only with sorted data

b. it is an algorithm that examines every item in the list only one time

c. the algorithm takes n squared number of operations to search the data

d. the search works on sorted as well as unsorted data

1. Two of the statements below are true about binary searching. Select the two true statements.

a. with just two comparisons, three-fourths of the locations in the list where the data being searched for might occur, can be eliminated

b. the algorithm works on both sorted and unsorted data

c. the algorithm works only on sorted data

d. the algorithm examines every item in the list exactly one time

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
12. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_