

ion 20

et answered

ed out of

g question

Find the answer for the following binary multiplication.

$$11100011 \times 101$$

$$\begin{array}{r} 11100011 \\ \times 101 \\ \hline \end{array}$$

$$\begin{array}{r} 11100011 \\ 00000000 \\ + 11100011 \\ \hline \end{array}$$

$$\begin{array}{r} 10001101111 \\ \hline \end{array}$$

Select one:

- 10001101111
- 11111111001
- 10101100000
- 010010100110
- None of the above.

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Simplify the following boolean expression.

$$\bar{A} \bar{B} \bar{C} + A \bar{B} \bar{C} + \bar{A} \bar{B} \bar{C} + \bar{A} \bar{B} \bar{C}$$

Select one:

- $\bar{A} \bar{B} \bar{C}$ $A'BC' + A'B'C' + AB'C' + A'B'C'$ (commutative law)
- $\bar{B} \bar{C}$ $A'C'(B+B') + C'B'(A+A')$
- $(\bar{A} + \bar{B}) \bar{C}$ $A'C'(1) + C'B'(1)$ (inverse law)
- $(A + \bar{B}) \bar{C}$
- None of the above

21

answered
out of

question

Convert the number 1061_8 to equivalent decimal numbers.

Select one:

- 561
- 692
- 298
- 332
- None of the above.

$$\begin{array}{r} 1 \quad 0 \quad 6 \quad 1 \\ \times \quad \quad \quad | \\ = 8^0 * 1 = \quad 1 \\ = 8^1 * 6 = \quad 48 \\ = 8^2 * 0 = \quad 0 \\ = 8^3 * 1 = \quad 512 \\ \hline \hline \end{array}$$



Question 22

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Flag question

r---> base
N ---> number
n----> number of digits

$$\begin{array}{r} 101010111 \\ + \quad 100010 \\ \hline 1011110001 \end{array}$$

<- N= 101110001
n = 10 , r= 2

$$A = 101010111 + 100010$$

Find the 2's Complement of A.

(No spaces should be there in your answer)

2's complement = $r^n - N$

$$\begin{aligned} &= 2^{10} - 101110001 \\ &= 10000000000 - 101110001 \\ &= 010101010111 \end{aligned}$$

Answer:

010101010111

on 23
t answered
d out of
g question

Simplify the following boolean expression.

$$ABC + \overline{A} B + ABC\overline{C}$$

Select one:

A

$ABC' + ABC + A'B$ (commutative law)

B

$AB(C'+C) + A'B$

$AB(1) + A'B$ (inverse law)

AB

$B(A+A')$

(inverse law)

BC

$B(1)$

(identity law)

None of the above

B

**Question 19**

Not yet answered

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Flag question

Convert the number 273.25_{10} to the equivalent binary number.

Select one:

- 100010001.01
- 100010001.111
- 100101100.11
- 1111101.001
- None of the above.

$$\begin{array}{r} 2 | \quad 273 \\ 2 | \quad 136 \quad - 1 \\ 2 | \quad 68 \quad - 0 \\ 2 | \quad 34 \quad - 0 \\ 2 | \quad 17 \quad - 0 \\ 2 | \quad 8 \quad - 1 \\ 2 | \quad 4 \quad - 0 \\ 2 | \quad 2 \quad - 0 \\ 2 | \quad 1 \quad - 0 \\ \hline & 0 - 1 \end{array}$$

fraction part

$$\begin{aligned} 0.25 * 2 &= 0.5 \rightarrow 0 \\ 0.5 * 2 &= 1.0 \rightarrow 1 \end{aligned}$$



$$= 100010001.01$$

20

Answered

out of

Question

Find the answer for the following binary multiplication.

$$11100011 \times 101$$

(Already answered)

Select one:

- 10001101111
- 11111111001
- 10101100000
- 010010100110
- None of the above.

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x

X C | i | B



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Find the value of the following definite integral.

$$\int_0^3 |3t - 5| dt$$

$$| 3t - 5 | \begin{cases} (3t - 5) & ; \text{ if } t \geq 5/3 \\ -(3t - 5) & ; \text{ if } t < 5/3 \end{cases}$$

Select one: $\int_0^3 |3t - 5| = \int_{5/3}^3 (3t - 5) dt - \int_0^{5/3} (3t - 5) dt$

20

$30/6 = |(3t^2)/2 - 5t|_{5/3}^3 - |(3t^2)/2 - 5t|_0^{5/3}$

$41/6 = \{(3*3^2)/2 - 5*3\} - \{(3*5/3^2)/2 - 5*5/3\} - \{(3*5/3^2)/2 - 5*5/3\}$

42/6

None of the above $= [27/2 - 15] - [25/6 - 25/3] - [25/6 - 25/3]$

$$= 27/2 - 50/6 + 50/3 - 15$$

$$= 41/6$$



Find the value of the following definite integral

$$\int_1^4 |3x - 6| dx \quad | 3x - 6 | \begin{cases} (3x - 6) & ; \text{ if } x \geq 2 \\ -(3x - 6) & ; \text{ if } x < 2 \end{cases}$$
$$F_1^4 |3x - 6| dx = F_2^4 (3x - 6) dx - F_1^2 (3x - 6) dx$$

Select one:

- 15/2 $= |(3x^2)/2 - 6x|_2^4 - |(3x^2)/2 - 6x|_1^2$
 $= \{(3*4^2)/2 - 6*4\} - \{(3*2^2)/2 - 6*2\} - \{(3*2^2)/2 - 6*2\} - \{(3*1^2)/2 - 6*1\}$
- 7/2 $= [24-24] - [6-12] - [6-12] + [3/2 - 6]$
- 0 $= 6 + 6 - 9/2$
- 12/4 $= 15/2$
- None of the above

The inverse of function

$$f(x) = x^3 + 2 \quad \text{---} 2 \text{ is a constant}$$

Select one:

- $f^{-1}(x) = (x - 2)^{1/2}$
- $f^{-1}(x) = (x - 2)^{1/3}$
- $f^{-1}(x) = x^{1/3}$
- $f^{-1}(x) = x - 2$
- None of the above

The constant rule:
 $\frac{d(C)}{dx} = 0$; where C is a constant

$$f'(x) = 3x^2 + 0$$

$$f'(x) = 3x^2$$



1

answered

out of

question

Find the value of the following definite integral.

$$\int_0^3 |3t - 5| dt$$

(Already answered)

Select one:

- 20
- 30/6
- 41/6
- 42/6
- None of the above



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The inverse of function $f(x) = x^3 + 2$ is _____.

Select one:

- $f^{-1}(x) = (x - 2)^{1/3}$ (Already answered)
- $f^{-1}(x) = (x - 2)^{1/2}$
- $f^{-1}(x) = x^{1/3}$
- $f^{-1}(x) = x - 2$
- None of the above

Question 4

Not yet answered

Marked out of
1.00 Flag question

Find the value of the following definite integral.

$$\int_{-1}^1 \frac{x^2 - \sqrt{25x^2}}{x} dx$$
$$y = \frac{x^2 - \sqrt{25x^2}}{x}$$
$$y = \frac{x^2 - 5x}{x}$$
$$y = x - 5$$

Select one:

 10  10 0 -1 None of the above

Therefore;

$$\frac{x^2 - \sqrt{25x^2}}{x} = x - 5$$

$$F(x) = \left[\frac{x^2}{2} - 5x \right]_1^1$$

$$= \left(\frac{1}{2} \right) - 5*1 - \left\{ \frac{(-1)^2}{2} - 5(-1) \right\}$$

$$= -5 - (+5)$$

$$= -10$$

Select the suitable answer for each blank.

Proof: $a(a + b)$

$$= (a+0)(a + b) \quad |(1) \qquad \text{← Identity Law}$$

$$= a+0\cdot b \quad (2) \qquad \text{← Distributive law}$$

$$= a + 0 \quad (3) \qquad \text{← Null law/ Universal bound law/ Domination law}$$

$$= a \quad (4) \qquad \text{← Identity law}$$

Answer 1 Identity Law ▾

Answer 2 Choose... ▾

Answer 3 Choose...

Answer 4 Choose...

- Identity Law
- IdentityLaw
- Inverse Law
- De Morgan's Law
- Commutative Law
- Universal Bound Law
- Distributive law
- Distributive Law
- Associative Law



Question 18

Not yet answered

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Flag question

Find the answer for the following binary division.

$$10101010 \div 11$$

Select one:

- Quotient = 1011000 & Remainder = 01
- Quotient = 0111000 & Remainder = 01
- Quotient = 0111000 & Remainder = 10
- Quotient = 1011000 & Remainder = 11
- None of the above.

A binary division diagram. The divisor is 11, and the dividend is 10101010. The quotient is 0111000 and the remainder is 10. The diagram shows the steps of the division process with red arrows indicating the subtraction of remainders.

11	10101010
11	100
11	11
11	00
11	01
10	0
10	10



Question 22

Not yet answered

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Flag question

$$A = 111011 + 10001010$$

$$\begin{array}{r} 111011 \\ +10001010 \\ \hline 11000101 \\ \hline \hline \end{array}$$

 $r = \text{base}, n = 8, N = 11000101$ 2's complement = $r^n - N$

$$\begin{aligned} &= 2^8 - 11000101 \\ &= 100000000 - 11000101 \\ &= 111011 \end{aligned}$$

Find the 2's Complement of A.

(No spaces should be there in your answer)

Answer: 00111011

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estion

Simplify the following boolean expression.

$$\overline{A} \overline{B} \overline{C} + A \overline{B} \overline{C} + \overline{A} \overline{B} \overline{C} + \overline{A} \overline{B} \overline{C}$$

Select one:

$\overline{A} \overline{B} \overline{C}$

(Already answered)



$(\overline{A} + \overline{B})\overline{C}$



$(A + \overline{B})\overline{C}$



None of the above

Consider the following function.

Find $g^{-1}(3)$

???

Hint : Find the inverse of g and substitute -5.

Answer:

3

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Steps:

- (1) - Replace $g(x)$ with y
- (2) - Replace y with x and, x with y
- (3) - Solve the equation step 2 for y
- (4) - Replace y with $g^{-1}(x)$

$$g: R \rightarrow R \quad g(x) = \frac{(5x - 9)}{2}$$

$$g(x) = \frac{(5x - 9)}{2}$$

$$y = \frac{(5x - 9)}{2}$$

$$x = \frac{(5y - 9)}{2}$$

$$\frac{2x}{5} = \frac{5y - 9}{5}$$

$$2x + 9 = 5y$$

$$y = \frac{2x + 9}{5}$$

$$g^{-1}(x) = \frac{2x + 9}{5}$$

$$g^{-1}(x) = \frac{2(3) + 9}{5}$$

$$g^{-1}(x) = 3$$

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N Refers to all the positive integers. (Called as Natural Numbers)
---one to one ---

If $n_1, n_2 \in N$ let assume that the image n_1 is going to be equal to the image of n_2

$$f: N \rightarrow N \quad f(n) = x^4 - 2x + 1$$

$$f(n_1) = f(n_2)$$

Is f a One to one function?

Choose...

$$n_1^4 - 2n_1 + 1 = n_2^4 + 2n_2 + 1$$

Is f an onto function?

Choose...

$$n_1^4 - 2n_1 = n_2^4 - 2n_2$$

Does f has an inverse function?

Choose...

If these two images are not equal then the element should not be equal

---on to---

Therefore f is not a one to one function

If any y value in our co-domain should exists any x value which is in our domain then the function is a onto function

$$y \in N \rightarrow \exists n \in N$$

$$y = f(n)$$

$$y = n^4 + 2n + 1$$

$$n^4 + 2n = -1$$

We cannot express x in terms of y therefore this function is not a onto function

Because the function is not one to one and onto functions, this function is not a one to one correspondence function

Therefore we cannot get the inverse function of this function

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Question 6

Not yet answered

Marked out of
1.00 Flag questionDifferentiate the following function with respect to x ,

$$(\sqrt{x} - 3)(x^2 - 3x)$$

Select one:

- $\sqrt{x}(5x - 9) - 6x + 9$
- $\frac{\sqrt{x}(5x - 9) - 16x + 24}{2}$
- $\frac{\sqrt{x}(5x - 6) - 16x + 16}{2}$
- $\frac{\sqrt{x}(5x - 9) - 12x + 18}{2}$
- None of the above

$$\begin{aligned}f'(x) &= (\sqrt{x} - 3)(x^2 - 3x) \\&= (\sqrt{x} - 3)(2x - 3) + (x^2 - 3x)\left(\frac{1}{2\sqrt{x}} - 0\right) \\&= \frac{2\sqrt{x}(2x\sqrt{x} - 3\sqrt{x} - 6x + 9) + x^2 - 3x}{2\sqrt{x}} \\&= \frac{4x^2 - 6x + 6\sqrt{x}(3 - 2x) + x^2 - 3x}{2\sqrt{x}} \\&= \frac{5x^2 - 9x + 6\sqrt{x}(3 - 2x)}{2\sqrt{x}} \\&= \frac{5x\cdot x - 9x - 12x\sqrt{x} + 18\sqrt{x}}{2\sqrt{x}} \\&= \frac{5x\sqrt{x} - 9\sqrt{x} - 12x + 18}{2} \\&= \frac{\sqrt{x}(5x - 9) - 12x + 18}{2}\end{aligned}$$

Question 9

Not yet answered

Marked out of
1.00

Flag question

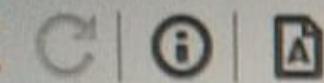
Simplify

$$\int (x^3 - 6x + 8) dx$$

Select one:

- $\frac{x(x^3 - 12x + 32)}{4} + C$
- $\frac{x^4}{4} + x^2 + 5x + C$
- $\frac{x(x^3 - 4x + 12)}{4} + C$
- $\frac{x(x^3 - 4x - 8)}{4} + C$
- None of the above

$$\begin{aligned}\int (x^3 - 6x + 8) dx &= \frac{x^4}{4} - \frac{6x^2}{2} + 8x + C \\ &= \frac{x^4 - 12x^2 + 32x}{4} + C \\ &= \frac{x(x^3 - 12x + 32)}{4} + C\end{aligned}$$



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Identity Law---> A+0=A
A.1 =A

Find the dual of the following expression.

$$(a + 0).(b + 1) = a$$

$a \cdot 1 = a$
 $a = a$

01)- $(a \cdot 1) + (b \cdot 0) = a + 0$
 $= a$

Null Law ---> A + 1 = 1
A . 0 = 0

Select one:

- 03)- $(a \cdot 1) + (b \cdot 1) = a + b$
- 04)- $(a \cdot 1) + (b \cdot 0) = a + 0$
 $= a$ -----: (a != b)
- 01)- $(a \cdot 1) + (b \cdot 1) = a$
- 02)- $(a \cdot 1)(b \cdot 0) = 0$
- 05)- $(a \cdot 1) + (b \cdot 0) = b$
- 06)- None of the above

Find,

$$\frac{d}{dx} [(\sqrt{x} - 3)(x^2 - 5x)]$$

Select one:

$\frac{\sqrt{x}(5x - 18) - 12x + 36}{2}$

$\frac{\sqrt{x}(5x - 15) - 12x + 30}{2}$

$\frac{\sqrt{x}(5x - 18) - 16x + 48}{2}$

$\frac{\sqrt{x}(5x - 3) - 16x + 8}{2}$

$$= \frac{\sqrt{x}(5x - 15) - 12x + 30}{2}$$

△

$$\begin{aligned}
 f(x) &= (\sqrt{x} - 3)(x^2 - 5x) \\
 &= (\sqrt{x} - 3)(2x - 5) + (x^2 - 5x)\left(\frac{1}{2\sqrt{x}}\right) - 0 \\
 &= 2x\sqrt{x} - 5\sqrt{x} - 6x + 15 + x^2 - 5x^2 \\
 &= \frac{4x\sqrt{x} - 10\sqrt{x} - 12x + 30 + x\sqrt{x} - 5\sqrt{x}}{2}
 \end{aligned}$$

2

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Select the suitable answer for each blank.

Proof: $a(a + b)$

$$= (a+0)(a + b) \quad |(1)$$

$$= a+0\cdot b \quad (2)$$

$$= a + 0 \quad (3)$$

$$= a \quad (4)$$

Answer 1 Choose... ▾

Answer 2 Choose... ▾

Answer 3 Choose... ▾

Answer 4 Choose... ▾

12

Answered
out of
question

Select the suitable answer for each blank.

$$Q = (A + B)(A + C)$$

$$A(A + A.C + A.B + B.C) - \text{Distributive law}$$

$$A + A.C + A.B + B.C - \textcircled{1}$$

$$A(1 + C) + A.B + B.C - \text{Distributive law}$$

$$A.1 + A.B + B.C - \textcircled{2}$$

$$A(1 + B) + B.C - \text{Distributive law}$$

$$A.1 + B.C - \textcircled{3}$$

$$Q = A + (B.C) - \textcircled{4}$$

Answer 1

Choose...

Choose...

De Morgan's Law

Universal Bound Law

Associative Law

Distributive law

Commutative Law

Inverse Law

Idempotent Law

Identity Law

Answer 2

Answer 3

Answer 4



Question 13

Not yet answered

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[Flag question](#)

A committee of three individuals decides issues for an organization. Each individual votes either yes or no for each proposal that arises. A proposal is passed if it receives at least two yes votes. Assume that you design a circuit that determines whether a proposal passes. What is the boolean expression which matches the above circuit.

Select one:

- $\bar{X}YZ + X\bar{Y}\bar{Z} + XY\bar{Z} + XYZ$
- $\bar{X}YZ + X\bar{Y}Z + XY\bar{Z} + XYZ$
- $\bar{X}Y\bar{Z} + X\bar{Y}\bar{Z} + XY\bar{Z} + XYZ$
- $\bar{X}Y\bar{Z} + X\bar{Y}\bar{Z} + XY\bar{Z} + \bar{X}YZ$
- None of the above

Select the suitable answer for each blank.

Proof: $a(a + b)$

$$= (a+0)(a + b) \quad (1)$$

$$= a+0\cdot b \quad (2)$$

$$= a + 0 \quad (3)$$

$$= a \quad (4)$$

Answer 1 Choose...

Answer 2 Choose...

Answer 3 Choose...

Answer 4 Choose...

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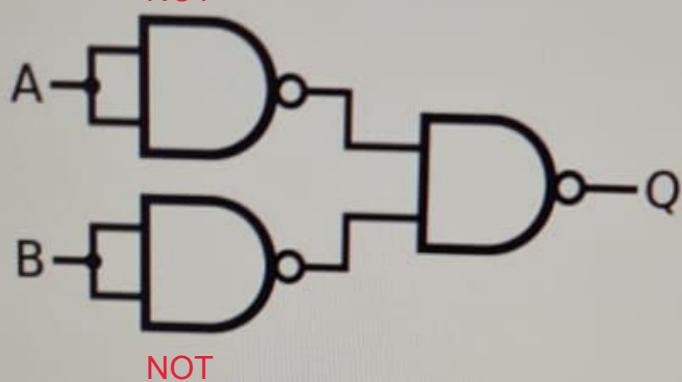
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Following circuit is equivalent to,

NOT



NOT

Select one:

- OR Gate
- NOR Gate
- NAND Gate
- NOT Gate
- None of the above

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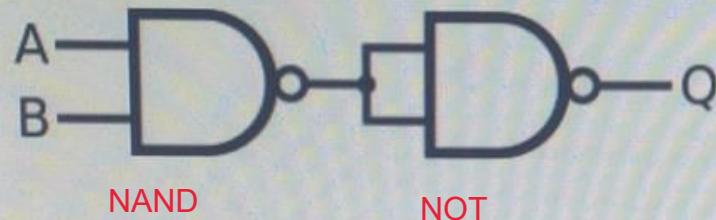
Question 14

Not yet answered

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Flag question

Following circuit is equivalent to:



Select one:

- OR Gate
- AND Gate
- NOR Gate
- NAND Gate
- None of the above



Select the Correct Answer.

A variant of Universal Bound Law is,

B + 1 = 1



A Variant of Identity Law is,

C + 0 = C



A Variant of Idempotent Law is,

A . A = A



**Question 13**

Not yet answered

Marked out of
1.00

Flag question

A committee of three individuals decides issues for an organization. Each individual votes either yes or no for each proposal that arises. A proposal is passed if it receives at least two yes votes. Assume that you design a circuit that determines whether a proposal passes. What is the boolean expression which matches the above circuit.

Select one:

- $\bar{X}Y + XZ + YZ$
- $XYZ + XZ$
- $XY + XZ$
- $X.(Y+Z)$
- None of the above

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[Next page](#)



Question 17

Not yet answered

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Convert the number 168_{10} to a base 5 number system.

Select one:

- 2200
- 4412
- 1133
- 2002
- None of the above.



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Calculate the 1's complement for the following binary number.

1001101101001

Select one:

- 11101101100011
- 10111111001111
- 111000100110
- 110010010110
- None of the above.



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2

Answered.
of
Question

$$A = 100011 + 10001110$$

Find the 2's Complement of A.

(No spaces should be there in your answer)

Answer:

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Calculate the 1's complement for the following binary number.

1001101101001

Select one:

- 11101101100011
- 10111111001111
- 111000100110
- 110010010110
- None of the above.



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Find the answer for the following binary multiplication.

$$10101010 \times 111$$

Select one:

- 11101101101
- 11111111001
- 10101100000
- 010010100110
- None of the above.



Convert the number 167_{10} to a base 11 positional number system.

Select one:

- 20A
- 812
- 113
- 11B
- None of the above.

Module : X G 018

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Question 27
Not yet answered
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P flag question

Convert the number 1010110100_2 to equivalent decimal numbers.

Select one:

- 561
- 692
- 298
- 322
- None of the above.

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22

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Jimmy Fallon

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Convert the number 221122_3 to equivalent decimal numbers.

Select one:

- 561
- 692
- 298
- 332
- None of the above.

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Find the answer for the following binary division.

$$10101010 \div 10$$

Select one:

- Quotient = 1011000 & Remainder = 00
- Quotient = 01010101 & Remainder = 01
- Quotient = 01010101 & Remainder = 00
- Quotient = 1011000 & Remainder = 10
- None of the above.



$$A = 100011 + 10001110$$

Find the 2's Complement of A.

(No spaces should be there in your answer)

Answer:

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Quiz navigation

Finish attempt ...
Time left 0:03:22

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22	23		

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Question 22
Not yet answered
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Flag question

A = 100011 + 10001110
Find the 2's Complement of A.
(No spaces should be there in your answer)

Answer:

Convert the number 100111.1101_2 to the equivalent decimal number.

Select one:

- 37.9375
- 39.8125
- 55.3125
- 49.6875
- None of the above.