

## Discrete Mathematics (1) - All sections

### Question 1

Answer saved  
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Flag question

Let  $p$  : I will pay my taxes

$q$  : paying my taxes

$r$  : I will go to jail.

Express the following statement using symbols

## Discrete Mathematics (1) - All sections

### Question 2

Answer saved  
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Flag question

The inverse of the statement "If  $x$  is even, then  $x + 1$  is odd" is

Select one:

- A. If  $x$  is odd, then  $x + 1$  is even
- B. If  $x + 1$  is odd, then  $x$  is odd
- C. If  $x + 1$  is even, then  $x$  is odd
- D. If  $x + 1$  is odd, then  $x$  is even

[Clear my choice](#)

Quiz navigation



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## Discrete Mathematics (1) - All sections

### Question 3

Answer saved  
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Flag question

Let  $p$  : Climbing is safe

$q$  : Weather temperature is less than 0

$r$  : The guide is familiar with the mountain.

Express the following statement using symbols

"For climbing to be safe it is necessary but not sufficient that the weather temperature is above 0 and your guide is familiar with the mountain."

Select one:

- a.  $[p \rightarrow (\neg q \wedge r)] \wedge \neg [p \rightarrow (\neg q \wedge r)]$
- b.  $[(p \vee q) \rightarrow r] \wedge \neg [(p \vee q) \rightarrow r]$
- c.  $[p \rightarrow (\neg q \wedge r)] \wedge \neg [(\neg q \wedge r) \rightarrow p]$
- d.  $[p \rightarrow (\neg q \wedge r)] \wedge \neg [(\neg q \wedge r) \rightarrow p]$

Clear my choice

Quiz navigation



Finish attempt ...

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## Discrete Mathematics (1) - All sections

Question  
4

Answer saved  
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2.00  
Flag question

$\neg(S \times P(x))$  is equivalent to  $\forall x P(x)$ .

Select one:

- True  
 False

Quiz navigation

1 2 3 4 5 6 7 8

Finish attempt ...

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## Discrete Mathematics (1) - All sections

### Question 5

Answer saved  
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Flag question

The negation of the statement " $\exists x \in \mathbb{R}, x^2 - 1 \neq 0$ " is

Select one:

- A.  $\forall x \in \mathbb{R}, x^2 - 1 \neq 0$
- B.  $\forall x \in \mathbb{R}, x^2 - 1 \neq 0$
- C.  $\forall x \in \mathbb{R}, x^2 - 1 < 0$
- D.  $\forall x \in \mathbb{R}, x^2 - 1 > 0$

[Clear my choice](#)

Quiz navigation



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## Discrete Mathematics (1) - All sections

Question 6  
Answer saved  
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Let  $\neg(P(x))$  be the statement " $x+1 > 2x$ ". If the domain consists of all integers, then the truth value of the statement " $\neg(\forall x P(x))$ " is the same as

- Select one:
- a.  $\neg(\forall x \neg P(x))$
  - b.  $\neg(P(2))$
  - c.  $\neg(\exists x \neg P(x))$
  - d.  $\neg(P(1))$

[Clear my choice](#)

Quiz navigation

1	2	3	4	5	6	7	8
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OneDrive

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## Discrete Mathematics (1) - All sections

Question 7

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Let  $m$  = "Juan is a math major,"  
 $c$  = "Juan is a computer science major,"  
 $g$  = "Juan's girlfriend is a literature major,"  
 $h$  = "Juan's girlfriend has read Hamlet," and  
 $t$  = "Juan's girlfriend has read The Tempest."

Which of the following expresses the statement "Juan is a computer science major and a math major, but his girlfriend is a literature major who hasn't read both The Tempest and Hamlet."

Select one:

- A.  $c \wedge m \wedge g \wedge (\sim h \wedge \sim t)$
- B.  $c \wedge m \wedge (g \vee (\sim h \vee \sim t))$
- C.  $c \wedge m \wedge (g \vee (\sim h \wedge \sim t))$
- D.  $c \wedge m \wedge g \wedge (\sim h \vee \sim t)$
- E.  $c \wedge m \wedge g \wedge (h \vee t)$

Clear my choice

Quiz navigation



Finish attempt ...

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## Discrete Mathematics (1) - All sections

Question 8

Answer saved  
Marked out of 2.00

Let P: This is a great website. Q: You should not come back here. Then "This is a great website and you should come back here." is best represented by?

Select one:

- a.  $P \wedge Q$
- b.  $P \vee Q$
- c.  $\neg P \vee \neg Q$
- d.  $P \wedge \neg Q$

[Clear my choice](#)

Quiz navigation



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[FINISH ATTEMPT ...](#)



## Discrete Mathematics (1) - All sections

### Question 2

Not yet answered  
Marked out of 2.00  
Flag question

The inverse of the statement "If  $x$  is even, then  $x + 1$  is odd" is

Select one:

- A. If  $x$  is odd, then  $x + 1$  is even
- B. If  $x + 1$  is odd, then  $x$  is odd
- C. If  $x + 1$  is even, then  $x$  is odd
- D. If  $x + 1$  is odd, then  $x$  is even

[Clear my choice](#)

Quiz navigation

1 2 3 4 5 6 7 8

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# Discrete Mathematics (1) - All sections

Question 2  
Answer saved  
Marked out of 2.00  
Flag question

Which of the following statement is a proposition?  
Select one:  
 a. The only odd prime number is 2  
 b. What is the time now?  
 c. God bless you!  
 d. Get me a glass of milkshake  
Clear my choice

Quiz navigation

1	2	3	4	5	6	7	8
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Finish attempt...  
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OneDrive

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## Discrete Mathematics (1) - All sections

Question  
2

Not yet  
answered  
Marked out of  
2.00

Flag question

What is the truth value of  $\forall x \forall y (xy \geq x+y), x, y \in \mathbb{Z}^+$  ?

Write TRUE or FALSE only.

Answer:

FALSE

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Quiz navigation

Rules



New heading



Finish attempt ...

Time left 0:53:51



# Discrete Mathematics (1) - All sections

Question 3

Not yet answered  
Marked out of 2.00  
Flag question

Translate the statement  $\exists x(K(x) \wedge H(x))$  into English where  $K(x)$  is "x is a driver" and  $H(x)$  is "x wins" and the domain consists of all people. choose the correct answer(s)

Select one:

- a. Every one is a driver and every one wins
- b. Some winning people are drivers
- c. There exists some one that is a driver or wins.
- d. There exists a person such that if he is a driver then he wins.

Clear my choice

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Quiz navigation

Rules



New heading



Finish attempt ...

Time left 0:49:44

# Discrete Mathematics (1) - All sections

Question 7  
Not yet answered  
Marked out of 2.00  
Flag question

To prove that if  $n$  is an odd integer, then  $5n + 2$  is odd, we assume that  $n =$   
  
, then  $5n + 2 =$   
  
, therefore  $5n + 2 =$   
  
and hence  $5n + 2$  is

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Quiz navigation

Rules

New heading

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15			

Finish attempt ...

Time left 0:32:35



# Discrete Mathematics (1) - All sections

**Question 9**  
Not yet answered  
Marked out of 2.00  
Flag question

The statement  $\neg p \rightarrow (q \rightarrow r)$  is logically equivalent to .

- a)  $q \rightarrow (p \vee r)$ .
- b)  $p \rightarrow (p \vee r)$ .
- c)  $p \rightarrow (q \vee r)$ .
- d)  $q \rightarrow (q \vee r)$ .

Answer:

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Quiz navigation

Rules

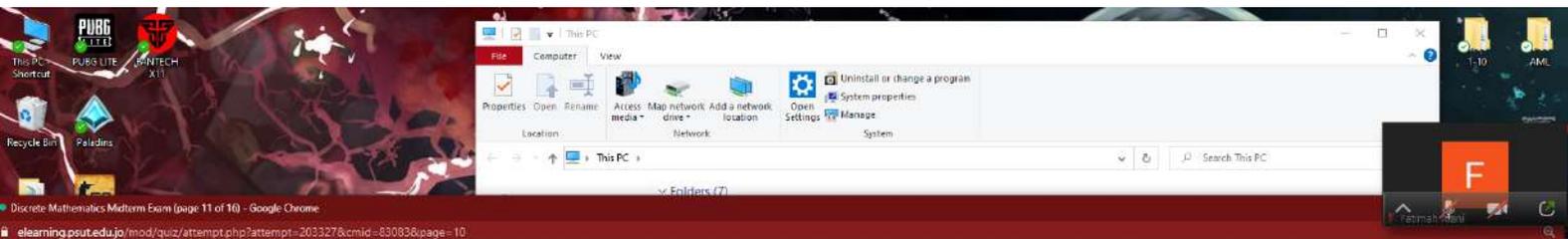
1

New heading

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15			

Finish attempt ...

Time left 0:22:58



Discrete Mathematics Midform Exam (page 11 of 16) - Google Chrome  
elearning.psu.edu/jo/mod/quiz/attempt.php?attempt=203327&cmid=830836&page=10

PSUT E-LEARNING

## Discrete Mathematics (1) - All sections

Question 10

Not yet answered  
Marked out of 2.00  
Flag question

Write the contrapositive of the conditional statement "The train runs late on exactly those days when I take the train" by using "unless"

Select one:

- a. "I do not take the train unless the train runs late on exactly those days".
- b. "The train does not run late on exactly those days unless I take the train".
- c. "I take the train unless the train does not run late on exactly those days".
- d. "I do not take the train unless the train does not run late on exactly those days".
- e. "I take the train unless the train does run late on exactly those days".

Clear my choice

Quiz navigation

Rules

1

New heading

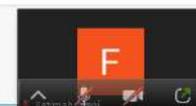
1 2 3 4 5 6 7 8 9  
10 11 12 13 14 15

Finish attempt ...

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## Discrete Mathematics (1) - All sections



### Question 12

Not yet answered

Marked out of 2.00

Flag question

To show that if  $x \in \mathbb{Z}$  and  $x^2 - 6x + 5$  is an even integer then  $x$  is an odd integer. You will apply the

method by assuming  $x$  is

and  $x^2 - 6x + 5$  is

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Quiz navigation

Rules

1

New heading

1 2 3 4 5 6 7 8 9

10 11 12 13 14 15

Finish attempt ...

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PSUT E-LEARNING

Grade 23.00 out of 30.00 (77%)

10 11 12 13 14  
Show one page at a time

FINISH REVIEW

Question 1

Correct  
Mark 2.00 out of 2.00  
Flag question

Let  $x < 0$ . If  $\cosh(x) = \frac{5}{3}$ , then  $\tanh(x) =$

- Select one:
- $-\frac{4}{3}$
  - $\frac{4}{5}$
  - $\frac{4}{3}$
  - 1
  - $-\frac{4}{5}$
- ✓

Question 2

Correct  
Mark 2.00 out of 2.00  
Flag question

Find the sum of the series if possible.

$$\sum_{n=1}^{\infty} \left( \frac{1}{\ln(n+5)} - \frac{1}{\ln(n+4)} \right)$$

- Select one:
- $-\ln(5)$
  - $-\frac{1}{\ln(5)}$
  - $-\ln(4)$
  - The series is divergent
  - $-\frac{1}{\ln(4)}$
- ✓

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Question 3

Correct  
Mark 2.00 out of 2.00  
Flag question

The partial fractions decomposition that represent  $\frac{x^2 - 5x + 1}{x^2 - 1}$  is

Select one:

- $1 + \frac{7}{2(x+1)} - \frac{3}{2(x-1)}$
- $1 - \frac{7}{2(x+1)} + \frac{3}{2(x-1)}$
- $1 + \frac{7}{2(x+1)} + \frac{3}{2(x-1)}$
- $1 - \frac{7}{2(x+1)} - \frac{3}{2(x-1)}$
- $1 - \frac{3}{2(x+1)} - \frac{7}{2(x-1)}$

Question 4

Correct  
Mark 2.00 out of 2.00  
Flag question

For which values of  $p$  is  $\int_1^{\infty} \frac{e^{px}}{(8 + e^{8x})^4} dx$  convergent?

Select one:

- $p > 12$
- $p > 3$
- $p < 12$
- $p < 3$
- $p = 12$

Question 5

Evaluate



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- p=12
- p<3
- p=12

Question 5

Correct  
Mark 2.00 out of 2.00  
Flag question

Evaluate

$$\int_0^{\pi/2} \sin(9x) \cos(7x) dx$$

1/2



Question 6

Correct  
Mark 2.00 out of 2.00  
Flag question

Consider the series  $\sum_{n=1}^{\infty} a_n$  where  $a_n = n \sin\left(\frac{3}{4n}\right)$ .

Then  $\lim_{n \rightarrow \infty} a_n =$

3/4



which implies the series is

The series is divergent by the divergence test



Question 7

Partially correct  
Mark 1.00 out of 2.00  
Flag question

The series  $\sum_{n=5}^{\infty} \frac{\ln(5n+1)}{5n+1}$  is

convergent



by

the integral test



Question

Find the sum of the series

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$\int \frac{x}{\sqrt{1-x^2}} dx$

Question 10

Incorrect  
Mark 0.00 out of 2.00

Flag question

Fully simplify  $y = (x^2 + 1)\operatorname{sech}(\ln x)$  then take the derivative, you get  $y' =$

Write your answer without any spaces

Answer:

✖

Question 11

Incorrect  
Mark 0.00 out of 2.00

Flag question

Which of the following integrals equals to  $\int \frac{\log_8(x \ln 2)}{x} dx$  after you make the substitution  $u = \log_8(x \ln 2)$ ?

Select one:

$\int u du$

✖

$\int \frac{1}{u} du$

$\int \frac{\ln 2}{u} du$

$\int u \ln 2 du$

Question 12

Correct  
Mark 2.00 out of 2.00

Flag question

For which of the following integrals is integration by parts with  $u = x$  and  $dv =$  (the rest of the integrand)  $dx$  a reasonable choice?

Select one:

$\int \frac{x}{\ln x} dx$