# Quiz 1

**Due** Aug 28 at 11:59pm        **Points** 6        **Questions** 6

**Available** Aug 26 at 12am - Oct 5 at 11:59pm        **Time Limit** 30 Minutes

# Instructions

# Task

- The quiz should be taken in a closed book environment.

   The questions can be in many formats (Multiple Choice/Multiple answers/Fill in the blanks)

   The quiz should be attempted after completing the weekly Assignment to give more preparation.

   These short activities will give a feedback about the understanding of the material at hand.

   Even though these are time bound, I have allocated enough time for each question.

   This a weekly quiz to be completed by Sunday of the week.

   Check your quiz score and the correct answers after Monday following the quiz.

## *Assignment scoring*

- *Each of the assignments will yield 6 points.*
- *Note the assignments put together account for 25% of the grade.*

## Attempt History

|  | Attempt | Time | Score |
|---|---|---|---|
| **LATEST** | [**Attempt 1**](#) | 30 minutes | 4 out of 6 |

Score for this quiz: **4** out of 6

Submitted Aug 28 at 5:47pm

This attempt took 30 minutes.

| **Question 1** | **1 / 1 pts** |
|---|---|

A counterexample to the statement

"If n is an integer and $n^2$ is divisible by 4, then n is divisible by 4" is

**Correct!**

☑ 6

☐ 3

☐ 4

☐ 8

☐ 5

## Question 2

**1 / 1 pts**

What is the induction hypothesis assumption for the inequality m ! > $2^m$ where m>=4?

a) for m=k, k+1!>$2^k$ holds
b) for m=k, k!>$2^k$ holds
c) for m=k, k!>$3^k$ holds
d) for m=k, k!>$2^{k+1}$ holds

○ a

**Correct!**

◉ b

○ c

○ d

## Question 3

**1 / 1 pts**

What is the induction basis step when proving the inequality m ! > $2^m$ where m>=4?

○ For m=1, the inequality is true

○ For some value m >4, the inequality is true

○ For m=5, the inequality is true

**Correct!**     ◉ For m=4, the inequality is true

○ For m=0, the inequality is true

---

## Question 4                                                    0 / 1 pts

What is the last step that we are trying to prove the inequality m ! > $2^m$ where m>=4?

(assuming the base case has been valid and assuming the induction hypothesis is valid for values of m up to k; )

a) prove  $k+1! > 2^k$ holds          b) prove $k! > 2^k$ holds

c) prove  $k! > 3^k$ holds

d) prove  $k! > 2^{k+1}$ holds              e) prove that $k+1! > 2^{k+1}$

**ou Answered**        ◉ b

○ d

○ c

○ a

**orrect Answer**      ○ e

---

## Question 5                                                    1 / 1 pts

In Proof by Example,

A) Show an example that disproves the claim

B) Show an example that proves the claim

C) Show multiple (large number of) examples that proves the claim

D)  None of the above - "Proof by Example" is not a valid proof technique.

**Correct!**

   ◉ D

   ○ C

   ○ B

   ○ A

---

## Question 6                                                    0 / 1 pts

In proof by contradiction, you prove a statement by assuming its negation and obtaining a contradiction.

orrect Answer            ○ True

ou Answered             ◉ False

Quiz Score: **4** out of 6