Assignment 0

The due date for submitting this assignment has passed. Due on 2018-02-05, 00:00 IST.

Submitted assignment

Assignment 0: Prerequisites

1) Let \( A \) and \( B \) be two sets. Then \( A \cup B = A \cup (B \cap A^C) \)

- True
- False

No, the answer is incorrect.
Score: 0
Accepted Answers:
True

2) A box contains 3 green balls, 4 red balls and 5 blue balls. The balls are numbered from 1 to 12 and are distinguishable. In how many ways can 3 balls of different colour be drawn from the box one after another? Assume that ordering does not matter, i.e. 1, 4, 8 is the same as 8, 4, 1 etc.

- 120
- 360
- 60
- 240

No, the answer is incorrect.
Score: 0
Accepted Answers:
60

3) The average of the first 100 positive integers is ________________

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 50.5

4) If \( A, B, C, D \) are consecutive terms in an arithmetic progression, what is the value of \( \frac{D^2 - A^2}{C^2 - B^2} \)? Assume \( C^2 - B^2 \neq 0 \).

- 3
- 9
5) \( S_n = p + p^2 + p^3 + \ldots + p^n, |p| < 1 \) Then \( S_n = \)
\[
\frac{np - 1}{1 - p} \]
\[
\frac{1 - p^n}{1 - p} \]
\[
p - p^{n+1} \]
\[
\frac{1}{1 - p} \]
\[
p - p \]

No, the answer is incorrect.
Score: 0
Accepted Answers:
\[
p - p^{n+1} \]
\[
\frac{1}{1 - p} \]

6) Find the coefficient of \( x^4 \) in the expansion of \( (x + 1)^9 \).

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 126

7) Let \( f(x) = \frac{e^x + e^{-x}}{e^x - e^{-x}} \). If \( f(a) = \frac{5}{3} \) and \( f(b) = \frac{7}{5} \), what is the value of \( f(a + b) \)?

No, the answer is incorrect.
Score: 0
Accepted Answers:
\[
\frac{29}{20} \]
\[
\frac{27}{23} \]
\[
\frac{29}{25} \]
\[
\frac{25}{23} \]

8) Consider the following equation: \( 2 \log_2(x) - 1 = \log_2 \left( \frac{3}{2}x - 1 \right) \). Convert the above into a quadratic equation and find its roots. What is the smallest of the two roots?
9) $\log_a(a) \log_b(b) = \log_x(a + b)$

- True
- False

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 1

10) Alice has a bunch of tennis balls in her drawer. She recalls that 3 of them are yellow, 4 of them are white and 5 of them are green. She reaches in and grabs several without looking. How many does she have to grab, in order to ensure that 3 of them are the same color?

- 4
- 5
- 6
- 7

No, the answer is incorrect.
Score: 0
Accepted Answers:
7

This assignment is only to test your preparation and will not be included for grading. Please click on check answers to find the correct answers to the questions.