

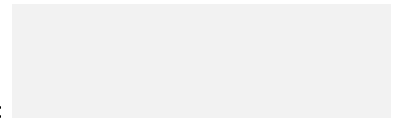
Teacher : ****TEACHER********EXAM**** - MA****DATE********DURATION****

AC-345

Student 1

SCIPER: **999000**Room: **R-A**

Signature :



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- Place your student card on your table.
- **No other paper materials** are allowed to be used during the exam.
- Using a **calculator** or any electronic device is not permitted during the exam.
- For the **multiple choice** questions, we give :
 - +3 points if your answer is correct,
 - 0 points if you give no answer or more than one,
 - 1 points if your answer is incorrect.
- For the **true/false** questions, we give :
 - +1 points if your answer is correct,
 - 0 points if you give no answer or more than one,
 - 1 points if your answer is incorrect.
- Use a **black or dark blue ballpen** and clearly erase with **correction fluid** if necessary.
- If a question is wrong, the teacher may decide to nullify it.

Respectez les consignes suivantes Observe this guidelines Beachten Sie bitte die unten stehenden Richtlinien		
choisir une réponse select an answer Antwort auswählen	ne PAS choisir une réponse NOT select an answer NICHT Antwort auswählen	Corriger une réponse Correct an answer Antwort korrigieren
ce qu'il ne faut PAS faire what should NOT be done was man NICHT tun sollte		

First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let the subset $E \subset \mathbb{R}$ defined by $E = \left\{ 2 \left(1 + \frac{1}{n} \right)^n : n \in \mathbb{N} \setminus \{0\} \right\}$.

Then

- ☒ 10 is a majorant of E
- ☐ the minimum of E is 2
- ☐ E is closed
- ☐ the supremum of E belongs to E

Question statement with one possible correct answer

- ☒ Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

CATALOGUE

First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let $f: \mathbb{R} \rightarrow \mathbb{R}$ and $g: \mathbb{R} \rightarrow \mathbb{R}$ are two functions defined on all \mathbb{R} . If $f \circ g$ is injective, then g is injective.

☒ TRUE ☐ FALSE

Let A be a bounded and non empty subset of \mathbb{R} .

Then $\inf A \in A$ and $\sup A \in A$.

☐ TRUE ☒ FALSE

Third part, open questions

Answer in the empty space below. Your answer should be carefully justified, and all the steps of your argument should be discussed in details. Leave the check-boxes empty, they are used for the grading.

Question 6: *This question is worth 8 points.*

We remind you that ...

Determine ...

CATALOGUE

Question 7: *This question is worth 2 points.*

☐ 0 ☐ .5 ☐ 1 ☐ .5 ☒ 2

We remind you that ...

Determine ...

Teacher : ****TEACHER********EXAM**** - MT****DATE********DURATION****

A-2













Student 2

SCIPER: **999001**Room: **R-A**

Signature :

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 - 1 points if your answer is incorrect.
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 - 0 points if you give no answer or more than one,
 - 1 points if your answer is incorrect.
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ce qu'il ne faut PAS faire what should NOT be done was man NICHT tun sollte		
     		

First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let the subset $E \subset \mathbb{R}$ defined by $E = \left\{ 2 \left(1 + \frac{1}{n} \right)^n : n \in \mathbb{N} \setminus \{0\} \right\}$.

Then

- ☒ 10 is a majorant of E
- ☐ the minimum of E is 2
- ☐ E is closed
- ☐ the supremum of E belongs to E

Question statement with one possible correct answer

- ☒ Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice ☐ False Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice ☐ False Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice ☐ False Answer Choice

CATALOGUE

First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let $f: \mathbb{R} \rightarrow \mathbb{R}$ and $g: \mathbb{R} \rightarrow \mathbb{R}$ are two functions defined on all \mathbb{R} . If $f \circ g$ is injective, then g is injective.

☒ TRUE ☐ FALSE

Let A be a bounded and non empty subset of \mathbb{R} .

Then $\inf A \in A$ and $\sup A \in A$.

☐ TRUE ☒ FALSE

Third part, open questions

Answer in the empty space below. Your answer should be carefully justified, and all the steps of your argument should be discussed in details. Leave the check-boxes empty, they are used for the grading.

Question 6: *This question is worth 8 points.*

We remind you that ...

Determine ...

CATALOGUE

Question 7: *This question is worth 2 points.*

☐ 0 ☐ .5 ☐ 1 ☐ .5 ☒ 2

We remind you that ...

Determine ...

Teacher : ****TEACHER********EXAM**** - SV****DATE********DURATION****

A-3













Student 3

SCIPER: **999002**Room: **R-A**

Signature :

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- For the **true/false** questions, we give :
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 - 0 points if you give no answer or more than one,
 - 1 points if your answer is incorrect.
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ce qu'il ne faut PAS faire what should NOT be done was man NICHT tun sollte		
     		

First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let the subset $E \subset \mathbb{R}$ defined by $E = \left\{ 2 \left(1 + \frac{1}{n} \right)^n : n \in \mathbb{N} \setminus \{0\} \right\}$.

Then

- ☒ 10 is a majorant of E
- ☐ the minimum of E is 2
- ☐ E is closed
- ☐ the supremum of E belongs to E

Question statement with one possible correct answer

- ☒ Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

CATALOGUE

First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let $f: \mathbb{R} \rightarrow \mathbb{R}$ and $g: \mathbb{R} \rightarrow \mathbb{R}$ are two functions defined on all \mathbb{R} . If $f \circ g$ is injective, then g is injective.

☒ TRUE ☐ FALSE

Let A be a bounded and non empty subset of \mathbb{R} .

Then $\inf A \in A$ and $\sup A \in A$.

☐ TRUE ☒ FALSE

Third part, open questions

Answer in the empty space below. Your answer should be carefully justified, and all the steps of your argument should be discussed in details. Leave the check-boxes empty, they are used for the grading.

Question 6: *This question is worth 8 points.*

We remind you that ...

Determine ...

CATALOGUE

Question 7: *This question is worth 2 points.*

☐ 0 ☐ .5 ☐ 1 ☐ .5 ☒ 2

We remind you that ...

Determine ...

Teacher : ****TEACHER********EXAM**** - -****DATE********DURATION****

B-1













Student 4

SCIPER: **999003**Room: **R-B**

Signature :

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- Place your student card on your table.
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 - 0 points if you give no answer or more than one,
 - 1 points if your answer is incorrect.
- For the **true/false** questions, we give :
 - +1 points if your answer is correct,
 - 0 points if you give no answer or more than one,
 - 1 points if your answer is incorrect.
- Use a **black or dark blue ballpen** and clearly erase with **correction fluid** if necessary.
- If a question is wrong, the teacher may decide to nullify it.

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ce qu'il ne faut PAS faire what should NOT be done was man NICHT tun sollte		
     		

First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let the subset $E \subset \mathbb{R}$ defined by $E = \left\{ 2 \left(1 + \frac{1}{n} \right)^n : n \in \mathbb{N} \setminus \{0\} \right\}$.

Then

- ☒ 10 is a majorant of E
- ☐ the minimum of E is 2
- ☐ E is closed
- ☐ the supremum of E belongs to E

Question statement with one possible correct answer

- ☒ Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice ☐ False Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice ☐ False Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice ☐ False Answer Choice

CATALOGUE

First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let $f: \mathbb{R} \rightarrow \mathbb{R}$ and $g: \mathbb{R} \rightarrow \mathbb{R}$ are two functions defined on all \mathbb{R} . If $f \circ g$ is injective, then g is injective.

☒ TRUE ☐ FALSE

Let A be a bounded and non empty subset of \mathbb{R} .

Then $\inf A \in A$ and $\sup A \in A$.

☐ TRUE ☒ FALSE

Third part, open questions

Answer in the empty space below. Your answer should be carefully justified, and all the steps of your argument should be discussed in details. Leave the check-boxes empty, they are used for the grading.

Question 6: *This question is worth 8 points.*

We remind you that ...

Determine ...

CATALOGUE

Question 7: *This question is worth 2 points.*

☐ 0 ☐ .5 ☐ 1 ☐ .5 ☒ 2

We remind you that ...

Determine ...

Teacher : ****TEACHER********EXAM**** - -****DATE********DURATION****

B-2













Student 5

SCIPER: **999004**Room: **R-B**

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- For the **true/false** questions, we give :
 - +1 points if your answer is correct,
 - 0 points if you give no answer or more than one,
 - 1 points if your answer is incorrect.
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ce qu'il ne faut PAS faire what should NOT be done was man NICHT tun sollte		
     		

First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let the subset $E \subset \mathbb{R}$ defined by $E = \left\{ 2 \left(1 + \frac{1}{n} \right)^n : n \in \mathbb{N} \setminus \{0\} \right\}$.

Then

- ☒ 10 is a majorant of E
- ☐ the minimum of E is 2
- ☐ E is closed
- ☐ the supremum of E belongs to E

Question statement with one possible correct answer

- ☒ Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

CATALOGUE

First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let $f: \mathbb{R} \rightarrow \mathbb{R}$ and $g: \mathbb{R} \rightarrow \mathbb{R}$ are two functions defined on all \mathbb{R} . If $f \circ g$ is injective, then g is injective.

☒ TRUE ☐ FALSE

Let A be a bounded and non empty subset of \mathbb{R} .

Then $\inf A \in A$ and $\sup A \in A$.

☐ TRUE ☒ FALSE

Third part, open questions

Answer in the empty space below. Your answer should be carefully justified, and all the steps of your argument should be discussed in details. Leave the check-boxes empty, they are used for the grading.

Question 6: *This question is worth 8 points.*

We remind you that ...

Determine ...

CATALOGUE

Question 7: *This question is worth 2 points.*

☐ 0 ☐ .5 ☐ 1 ☐ .5 ☒ 2

We remind you that ...

Determine ...

Teacher : ****TEACHER********EXAM**** - MA****DATE********DURATION****

B-3













Student 6

SCIPER: **999005**Room: **R-B**

Signature :

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 - 1 points if your answer is incorrect.
- For the **true/false** questions, we give :
 - +1 points if your answer is correct,
 - 0 points if you give no answer or more than one,
 - 1 points if your answer is incorrect.
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First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let the subset $E \subset \mathbb{R}$ defined by $E = \left\{ 2 \left(1 + \frac{1}{n} \right)^n : n \in \mathbb{N} \setminus \{0\} \right\}$.

Then

- ☒ 10 is a majorant of E
- ☐ the minimum of E is 2
- ☐ E is closed
- ☐ the supremum of E belongs to E

Question statement with one possible correct answer

- ☒ Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

CATALOGUE

First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let $f: \mathbb{R} \rightarrow \mathbb{R}$ and $g: \mathbb{R} \rightarrow \mathbb{R}$ are two functions defined on all \mathbb{R} . If $f \circ g$ is injective, then g is injective.

☒ TRUE ☐ FALSE

Let A be a bounded and non empty subset of \mathbb{R} .

Then $\inf A \in A$ and $\sup A \in A$.

☐ TRUE ☒ FALSE

Third part, open questions

Answer in the empty space below. Your answer should be carefully justified, and all the steps of your argument should be discussed in details. Leave the check-boxes empty, they are used for the grading.

Question 6: *This question is worth 8 points.*

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☒ 8

We remind you that ...

Determine ...

CATALOGUE

Question 7: *This question is worth 2 points.*

☐ 0 ☐ .5 ☐ 1 ☐ .5 ☒ 2

We remind you that ...

Determine ...

Teacher : ****TEACHER********EXAM**** - MT****DATE********DURATION****













B-4

Student 7

SCIPER: **999006**Room: **R-B**Signature: 

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 - 0 points if you give no answer or more than one,
 - 1 points if your answer is incorrect.
- For the **true/false** questions, we give :
 - +1 points if your answer is correct,
 - 0 points if you give no answer or more than one,
 - 1 points if your answer is incorrect.
- Use a **black or dark blue ballpen** and clearly erase with **correction fluid** if necessary.
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First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let the subset $E \subset \mathbb{R}$ defined by $E = \left\{ 2 \left(1 + \frac{1}{n} \right)^n : n \in \mathbb{N} \setminus \{0\} \right\}$.

Then

- ☒ 10 is a majorant of E
- ☐ the minimum of E is 2
- ☐ E is closed
- ☐ the supremum of E belongs to E

Question statement with one possible correct answer

- ☒ Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

CATALOGUE

First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let $f: \mathbb{R} \rightarrow \mathbb{R}$ and $g: \mathbb{R} \rightarrow \mathbb{R}$ are two functions defined on all \mathbb{R} . If $f \circ g$ is injective, then g is injective.

☒ TRUE ☐ FALSE

Let A be a bounded and non empty subset of \mathbb{R} .

Then $\inf A \in A$ and $\sup A \in A$.

☐ TRUE ☒ FALSE

Third part, open questions

Answer in the empty space below. Your answer should be carefully justified, and all the steps of your argument should be discussed in details. Leave the check-boxes empty, they are used for the grading.

Question 6: *This question is worth 8 points.*

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☒ 8

We remind you that ...

Determine ...

CATALOGUE

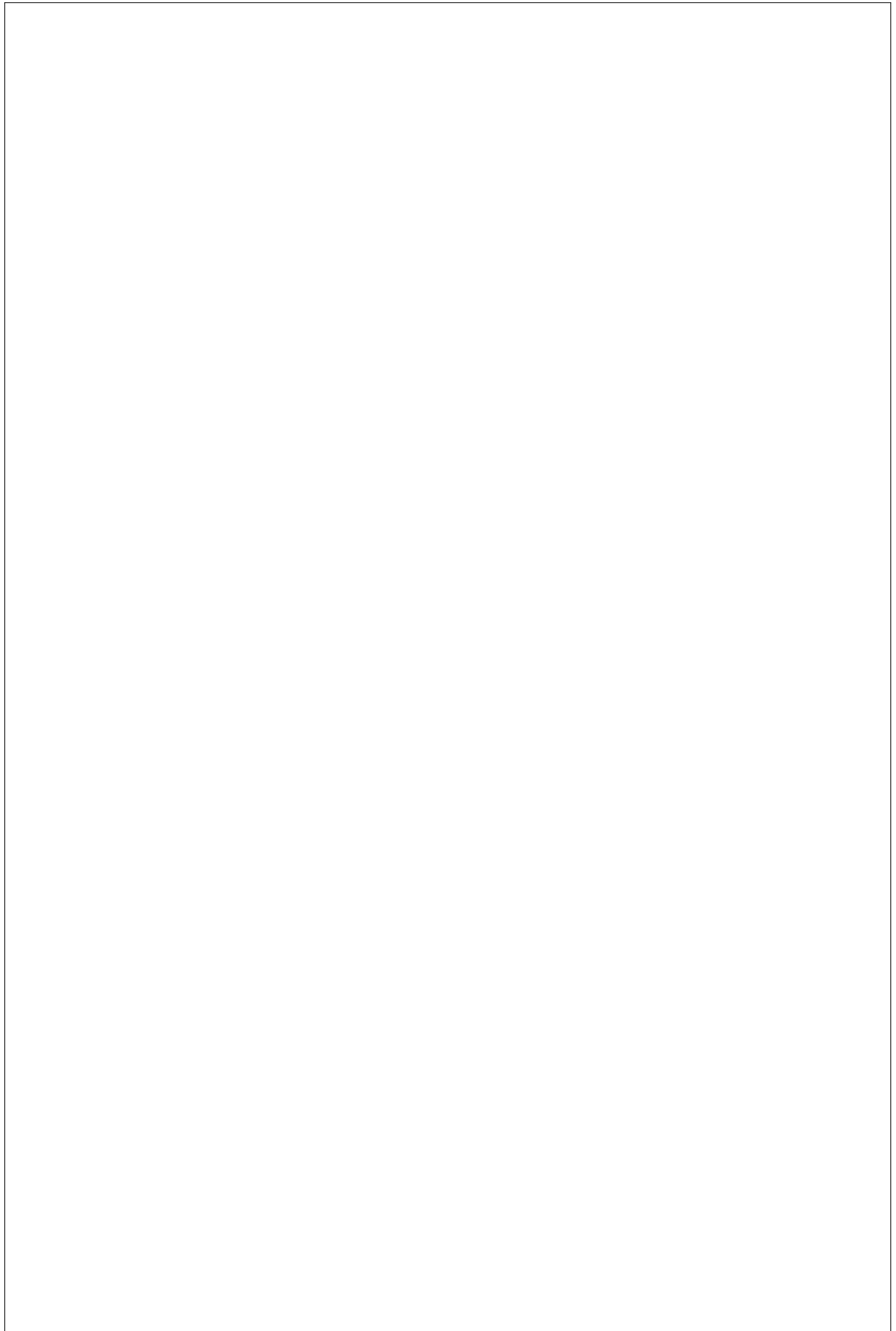
Question 7: *This question is worth 2 points.*

☐ 0 ☐ .5 ☐ 1 ☐ .5 ☒ 2

We remind you that ...

Determine ...

CATALOGUE



Teacher : ****TEACHER********EXAM**** - SV****DATE********DURATION****

B-5













Student 8

SCIPER: **999007**Room: **R-B**

Signature :

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First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let the subset $E \subset \mathbb{R}$ defined by $E = \left\{ 2 \left(1 + \frac{1}{n} \right)^n : n \in \mathbb{N} \setminus \{0\} \right\}$.

Then

- ☒ 10 is a majorant of E
- ☐ the minimum of E is 2
- ☐ E is closed
- ☐ the supremum of E belongs to E

Question statement with one possible correct answer

- ☒ Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

CATALOGUE

First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let $f: \mathbb{R} \rightarrow \mathbb{R}$ and $g: \mathbb{R} \rightarrow \mathbb{R}$ are two functions defined on all \mathbb{R} . If $f \circ g$ is injective, then g is injective.

☒ TRUE ☐ FALSE

Let A be a bounded and non empty subset of \mathbb{R} .

Then $\inf A \in A$ and $\sup A \in A$.

☐ TRUE ☒ FALSE

Third part, open questions

Answer in the empty space below. Your answer should be carefully justified, and all the steps of your argument should be discussed in details. Leave the check-boxes empty, they are used for the grading.

Question 6: *This question is worth 8 points.*

We remind you that ...

Determine ...

CATALOGUE

Question 7: *This question is worth 2 points.*

☐ 0 ☐ .5 ☐ 1 ☐ .5 ☒ 2

We remind you that ...

Determine ...

Teacher : ****TEACHER********EXAM**** - -****DATE********DURATION****

B-6













Student 9

SCIPER: **999008**Room: **R-B**

Signature :

Do not turn the page before the start of the exam. This document is double-sided, has 4 pages, the last ones possibly blank. Do not unstaple.

- Place your student card on your table.
- **No other paper materials** are allowed to be used during the exam.
- Using a **calculator** or any electronic device is not permitted during the exam.
- For the **multiple choice** questions, we give :
 - +3 points if your answer is correct,
 - 0 points if you give no answer or more than one,
 - 1 points if your answer is incorrect.
- For the **true/false** questions, we give :
 - +1 points if your answer is correct,
 - 0 points if you give no answer or more than one,
 - 1 points if your answer is incorrect.
- Use a **black or dark blue ballpen** and clearly erase with **correction fluid** if necessary.
- If a question is wrong, the teacher may decide to nullify it.

Respectez les consignes suivantes Observe this guidelines Beachten Sie bitte die unten stehenden Richtlinien		
choisir une réponse select an answer Antwort auswählen	ne PAS choisir une réponse NOT select an answer NICHT Antwort auswählen	Corriger une réponse Correct an answer Antwort korrigieren
  		 
ce qu'il ne faut PAS faire what should NOT be done was man NICHT tun sollte		
     		

First part: multiple choice questions

For each question, mark the box corresponding to the correct answer. Each question has **exactly one** correct answer.

Let the subset $E \subset \mathbb{R}$ defined by $E = \left\{ 2 \left(1 + \frac{1}{n} \right)^n : n \in \mathbb{N} \setminus \{0\} \right\}$.

Then

- ☒ 10 is a majorant of E
- ☐ the minimum of E is 2
- ☐ E is closed
- ☐ the supremum of E belongs to E

Question statement with one possible correct answer

- ☒ Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

- ☒ Correct Answer Choice
- ☒ Other Correct Answer Choice
- ☐ False Answer Choice
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Question statement with several possible correct answers

- ☒ Correct Answer Choice
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CATALOGUE

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☒ TRUE ☐ FALSE

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Then $\inf A \in A$ and $\sup A \in A$.

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Third part, open questions

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We remind you that ...

Determine ...

CATALOGUE

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☐ 0 ☐ .5 ☐ 1 ☐ .5 ☒ 2

We remind you that ...

Determine ...

Teacher : ****TEACHER********EXAM**** - -****DATE********DURATION****

B-7













Student 10

SCIPER: **999009**Room: **R-B**

Signature :

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 - 0 points if you give no answer or more than one,
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- ☐ False Answer Choice

Question statement with several possible correct answers

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- ☒ Other Correct Answer Choice
- ☐ False Answer Choice
- ☐ False Answer Choice

Question statement with several possible correct answers

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- ☒ Other Correct Answer Choice
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CATALOGUE

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CATALOGUE

Question 7: *This question is worth 2 points.*

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We remind you that ...

Determine ...

