

|   |       |                                |
|---|-------|--------------------------------|
| The name of the exam<br>22 gennaio 2022 | Prof. | Firma leggibile dello studente |
| Cognome:                                | Nome: | Matricola:                     |

## INSTRUCTIONS

- Write here your instructions
- two
- three

## Part One

SOME EXERCISES FROM 2 FILES

1. (1 punto) exercise 2a  $a = 4, b = 2, c = 7$
- (a) answer 5 wrong
  - (b) answer 4 wrong
  - (c) answer 2 wrong
  - (d) answer 3 wrong
  - ▶ (e) answer 1 correct

2. (2 punti) exercise 3b  $a = 2, b = 3, c = 6$
- (a) answer 2 wrong
  - (b) answer 4 wrong
  - ▶ (c) answer 1 correct
  - (d) answer 5 wrong
  - (e) answer 3 wrong
- Soluzione: answer 1

3. (1 punto) exercise 2b  $a = 3, b = 3, c = 5$
- (a) answer 2 wrong
  - (b) answer 4 wrong
  - (c) answer 5 wrong
  - (d) answer 3 wrong
  - ▶ (e) answer 1 correct

4. (1 punto) exercise 2c  $a = 3, b = 5, c = 6$
- ▶ (a) answer 1 correct
  - (b) answer 4 wrong
  - (c) answer 2 wrong
  - (d) answer 5 wrong
  - (e) answer 3 wrong

5. (2 punti) exercise 3a  $a = 5, b = 3, c = 3$
- ▶ (a) answer 1 correct
  - (b) answer 5 wrong
  - (c) answer 4 wrong
  - (d) answer 2 wrong
  - (e) answer 3 wrong
- Soluzione: answer 1

6. (1 punto) exercise 1a  $a = 7$
- (a) answer 3 wrong
  - (b) answer 2 wrong
  - ▶ (c) answer 1 correct

7. (2 punti) exercise 9b  $a = 3, b = 5, c = 3$
- (a) answer 3 wrong
  - ▶ (b) answer 1 correct
  - (c) answer 2 wrong
  - (d) answer 4 wrong
  - (e) answer 5 wrong

|          |
|----------|
| 15 punti |
|----------|

8. (1 punto) exercise 14a  $a = 3, b = 5, c = 5$   
 $alpha_i = 11, alpha_{ii} = 5$

- (a) answer 5 wrong
- (b) answer 3 wrong
- (c) answer 2 wrong
- ▶ (d) answer 1 correct
- (e) answer 4 wrong

Soluzione: This is the solution  $a = 3, b = 5, c = 5$

9. (1 punto) exercise 4e  $a = 2, b = 5, c = 7$

- (a) answer 2 wrong
- (b) answer 4 wrong
- (c) answer 5 wrong
- (d) answer 3 wrong
- ▶ (e) answer 1 correct

10. (1 punto)  $a = 15, b = 15, c = 3, k = 5$   
Evaluate with two exact decimals

$$15 : 5 = \boxed{3}$$

ALL THE PROBLEMS OF A FILE

11. (1 punto) exercise 11a

$\{b, c, y\}$

- ▶ (a) answer 1 correct

- (b) answer 3 wrong
- (c) answer 2 wrong

12. (1 punto) exercise 11b

$\{a, b, c\}$

- (a) answer 3 wrong
- ▶ (b) answer 1 correct
- (c) answer 2 wrong

SOME OTHER QUESTIONS

1. (1 punto) exercise 12a  $a = 3, b = 5, c = 6$

- ▶ (a) answer 1 correct
- (b) answer 4 wrong
- (c) answer 3 wrong
- (d) answer 2 wrong
- (e) answer 5 wrong

2. (2 punti) exercise 13b  $a = 4, b = 4, c = 6$

- (a) answer 2 wrong
- (b) answer 3 wrong
- (c) answer 4 wrong
- (d) answer 5 wrong
- ▶ (e) answer 1 correct

## Part two

Some other instructions.

ESERCIZIO 1. Let  $A = \{a,b,c\}$  and  $B = \{a,c,x\}$ .

(a) (2 punti) List (without repetition) the elements of the set  $A \cup B$

*Soluzione:*

$$A \cup B = \{a,b,c,x\}$$

(b) (2 punti) List (without repetition) the elements of the set  $A \cap B$

*Soluzione:*

$$A \cap B = \{a,c\}$$

|         |
|---------|
|         |
| 4 punti |

An example of matching question.

ESERCIZIO 2.

$a = 5$ ,  $b = 4$ ,  $c = 6$

(A)  $5 \times 4$

(C)  $5 + 4$

(B)  $6 - 5$

(A) 20

(B) 1

(C) 9

|                |
|----------------|
|                |
| <i>3 punti</i> |

An example of “tabella” question.

ESERCIZIO 3. Solve the following equations:

|                |
|----------------|
|                |
| <i>4 punti</i> |

| Equation            | Solution         |
|---------------------|------------------|
| $x^2 + 7x + 10 = 0$ | $x = 5; x = 2$   |
| $x^2 - 7x + 10 = 0$ | $x = -5; x = -2$ |
| $x^2 + 3x - 10 = 0$ | $x = -5; x = 2$  |
| $x^2 - 3x - 10 = 0$ | $x = 5; x = -2$  |

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## INSTRUCTIONS

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## Part One

SOME EXERCISES FROM 2 FILES

1. (1 punto) exercise 2c  $a = 2, b = 2, c = 5$
- (a) answer 5 wrong
  - (b) answer 4 wrong
  - (c) answer 3 wrong
  - ▶ (d) answer 1 correct
  - (e) answer 2 wrong

2. (2 punti) exercise 3a  $a = 2, b = 2, c = 3$
- ▶ (a) answer 1 correct
  - (b) answer 4 wrong
  - (c) answer 5 wrong
  - (d) answer 2 wrong
  - (e) answer 3 wrong
- Soluzione: answer 1

3. (1 punto) exercise 2b  $a = 4, b = 3, c = 8$
- (a) answer 2 wrong
  - (b) answer 3 wrong
  - ▶ (c) answer 1 correct
  - (d) answer 5 wrong
  - (e) answer 4 wrong

4. (2 punti) exercise 3d  $a = 5, b = 4, c = 4$
- (a) answer 2 wrong
  - ▶ (b) answer 1 correct
  - (c) answer 5 wrong
  - (d) answer 4 wrong
  - (e) answer 3 wrong
- Soluzione: answer 1

5. (1 punto) exercise 2a  $a = 3, b = 3, c = 3$
- (a) answer 3 wrong
  - (b) answer 2 wrong
  - (c) answer 5 wrong
  - ▶ (d) answer 1 correct
  - (e) answer 4 wrong

6. (1 punto) exercise 1b  $a = 2$
- ▶ (a) answer 1 correct
  - (b) answer 3 wrong
  - (c) answer 2 wrong

7. (1 punto)  $a = 14, b = 14, c = 4, k = 5$   
Evaluate with two exact decimals

$$14 : 4 =$$

|     |
|-----|
| 3,5 |
|-----|

|          |
|----------|
| 15 punti |
|----------|

8. (2 punti) exercise 9c  $a = 5, b = 3, c = 8$

- ▶ (a) answer 1 correct
- (b) answer 5 wrong
- (c) answer 4 wrong
- (d) answer 3 wrong
- (e) answer 2 wrong

9. (1 punto) exercise 14a  $a = 3, b = 3, c = 2$   $\alpha_i = 5$   
 $\alpha_{ii} = 7$

- (a) answer 3 wrong
- ▶ (b) answer 1 correct
- (c) answer 4 wrong
- (d) answer 5 wrong
- (e) answer 2 wrong

Soluzione: This is the solution  $a = 3, b = 3, c = 2$

10. (1 punto) exercise 4b  $a = 5, b = 5, c = 2$

- (a) answer 5 wrong
- ▶ (b) answer 1 correct
- (c) answer 3 wrong
- (d) answer 2 wrong
- (e) answer 4 wrong

ALL THE PROBLEMS OF A FILE

11. (1 punto) exercise 11b

$\{c, y, z\}$

(a) answer 3 wrong

(b) answer 2 wrong

- ▶ (c) answer 1 correct

12. (1 punto) exercise 11a

$\{a, c, x\}$

(a) answer 3 wrong

(b) answer 2 wrong

- ▶ (c) answer 1 correct

SOME OTHER QUESTIONS

1. (2 punti) exercise 13c  $a = 5, b = 5, c = 8$

- ▶ (a) answer 1 correct
- (b) answer 2 wrong
- (c) answer 3 wrong
- (d) answer 4 wrong
- (e) answer 5 wrong

2. (1 punto) exercise 12c  $a = 4, b = 2, c = 5$

- (a) answer 2 wrong
- (b) answer 5 wrong
- (c) answer 3 wrong
- ▶ (d) answer 1 correct
- (e) answer 4 wrong

## Part two

Some other instructions.

ESERCIZIO 1. Let  $A = \{a,b,c\}$  and  $B = \{a,c,y\}$ .

(a) (2 punti) List (without repetition) the elements of the set  $A \cup B$

*Soluzione:*

$$A \cup B = \{a,b,c,y\}$$

(b) (2 punti) List (without repetition) the elements of the set  $A \cap B$

*Soluzione:*

$$A \cap B = \{a,c\}$$

|         |
|---------|
|         |
| 4 punti |



An example of matching question.

ESERCIZIO 2.  $a = 12, b = 14, c = 4$

**(B)**  $12 \times 14$

**(A)**  $12 \times 14$

**(C)**  $12 \times 14$

**(E)**  $48 : 12$

**(D)**  $4^4$

(A) 168

(B) 168

(C) 168

(D) 256

(E) 4

|                |
|----------------|
|                |
| <i>3 punti</i> |

An example of “tabella” question.

ESERCIZIO 3. Complete the following table of derivatives:

| Function        | Derivative        |
|-----------------|-------------------|
| $f(x) = x^2$    | $f'(x) = 2x$      |
| $f(x) = \sin x$ | $f'(x) = \cos x$  |
| $f(x) = \cos x$ | $f'(x) = -\sin x$ |

5 punti

|   |       |                                |
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## INSTRUCTIONS

- Write here your instructions
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## Part One

SOME EXERCISES FROM 2 FILES

1. (1 punto) exercise 2c  $a = 5, b = 5, c = 2$

- ▶ (a) answer 1 correct
- (b) answer 2 wrong
- (c) answer 3 wrong
- (d) answer 4 wrong
- (e) answer 5 wrong

2. (2 punti) exercise 3a  $a = 5, b = 4, c = 4$

- ▶ (a) answer 1 correct
- (b) answer 4 wrong
- (c) answer 3 wrong
- (d) answer 2 wrong
- (e) answer 5 wrong

Soluzione: answer 1

3. (1 punto) exercise 2a  $a = 2, b = 5, c = 5$

- ▶ (a) answer 1 correct
- (b) answer 2 wrong
- (c) answer 4 wrong
- (d) answer 3 wrong
- (e) answer 5 wrong

4. (2 punti) exercise 3b  $a = 5, b = 5, c = 8$

- (a) answer 4 wrong
- (b) answer 5 wrong
- ▶ (c) answer 1 correct
- (d) answer 3 wrong
- (e) answer 2 wrong

Soluzione: answer 1

5. (1 punto) exercise 2b  $a = 5, b = 2, c = 6$

- (a) answer 4 wrong
- (b) answer 3 wrong
- ▶ (c) answer 1 correct
- (d) answer 2 wrong
- (e) answer 5 wrong

6. (1 punto) exercise 14a  $a = 4, b = 3, c = 7$   $\alpha_i = 3$   
 $\alpha_{ii} = 11$

- (a) answer 3 wrong
- ▶ (b) answer 1 correct
- (c) answer 5 wrong
- (d) answer 2 wrong
- (e) answer 4 wrong

Soluzione: This is the solution  $a = 4, b = 3, c = 7$

7. (1 punto)  $a = 13, b = 13, c = 3, k = 4$

Evaluate with two exact decimals

$$13 : 4 =$$

|             |
|-------------|
| <b>3,25</b> |
|-------------|

|          |
|----------|
| 15 punti |
|----------|

8. (1 punto) exercise 4c  $a = 3, b = 2, c = 8$

- ▶ (a) answer 1 correct
- (b) answer 3 wrong
- (c) answer 2 wrong
- (d) answer 4 wrong
- (e) answer 5 wrong

9. (1 punto) exercise 1a  $a = 3$

- (a) answer 3 wrong
- (b) answer 2 wrong
- ▶ (c) answer 1 correct

10. (2 punti) exercise 9d  $a = 3, b = 3, c = 5$

- ▶ (a) answer 1 correct
- (b) answer 2 wrong
- (c) answer 5 wrong
- (d) answer 4 wrong
- (e) answer 3 wrong

ALL THE PROBLEMS OF A FILE

11. (1 punto) exercise 11b

$\{a, b, c\}$

- (a) answer 3 wrong
- ▶ (b) answer 1 correct

(c) answer 2 wrong

12. (1 punto) exercise 11a

$\{a, b, x\}$

- ▶ (a) answer 1 correct
- (b) answer 2 wrong
- (c) answer 3 wrong

SOME OTHER QUESTIONS

1. (1 punto) exercise 12a  $a = 3, b = 5, c = 3$

- (a) answer 5 wrong
- ▶ (b) answer 1 correct
- (c) answer 4 wrong
- (d) answer 3 wrong
- (e) answer 2 wrong

2. (2 punti) exercise 13d  $a = 3, b = 4, c = 6$

- (a) answer 3 wrong
- (b) answer 2 wrong
- (c) answer 4 wrong
- ▶ (d) answer 1 correct
- (e) answer 5 wrong

## Part two

Some other instructions.

ESERCIZIO 1. Let  $A = \{a,b,c\}$  and  $B = \{a,c,y\}$ .

(a) (2 punti) List (without repetition) the elements of the set  $A \cup B$

*Soluzione:*

$$A \cup B = \{a,b,c,y\}$$

(b) (2 punti) List (without repetition) the elements of the set  $A \cap B$

*Soluzione:*

$$A \cap B = \{a,c\}$$

|         |
|---------|
|         |
| 4 punti |

An example of matching question.

ESERCIZIO 2.

$a = 4, b = 3, c = 7$

(A)  $4 \times 3$

(B)  $4 + 3$

(C)  $7 - 4$

(A) 12

(B) 7

(C) 3

|                |
|----------------|
|                |
| <i>3 punti</i> |

An example of “tabella” question.

ESERCIZIO 3. Solve the following equations:

|                |
|----------------|
|                |
| <i>4 punti</i> |

| Equation            | Solution         |
|---------------------|------------------|
| $x^2 + 9x + 14 = 0$ | $x = 7; x = 2$   |
| $x^2 - 9x + 14 = 0$ | $x = -7; x = -2$ |
| $x^2 + 5x - 14 = 0$ | $x = -7; x = 2$  |
| $x^2 - 5x - 14 = 0$ | $x = 7; x = -2$  |

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## INSTRUCTIONS

- Write here your instructions
- two
- three

## Part One

SOME EXERCISES FROM 2 FILES

1. (1 punto) exercise 2b  $a = 3, b = 2, c = 6$
- ▶ (a) answer 1 correct
  - (b) answer 2 wrong
  - (c) answer 5 wrong
  - (d) answer 3 wrong
  - (e) answer 4 wrong

2. (1 punto) exercise 2a  $a = 3, b = 5, c = 6$

- (a) answer 5 wrong
- (b) answer 4 wrong
- (c) answer 2 wrong
- (d) answer 3 wrong
- ▶ (e) answer 1 correct

3. (2 punti) exercise 3a  $a = 4, b = 4, c = 5$

- (a) answer 5 wrong
- (b) answer 4 wrong
- (c) answer 3 wrong
- ▶ (d) answer 1 correct
- (e) answer 2 wrong

Soluzione: answer 1

4. (2 punti) exercise 3b  $a = 3, b = 5, c = 3$

- (a) answer 5 wrong
- (b) answer 3 wrong
- (c) answer 2 wrong
- (d) answer 4 wrong
- ▶ (e) answer 1 correct

Soluzione: answer 1

5. (1 punto) exercise 2c  $a = 4, b = 2, c = 6$

- ▶ (a) answer 1 correct
- (b) answer 2 wrong
- (c) answer 3 wrong
- (d) answer 4 wrong
- (e) answer 5 wrong

6. (1 punto) exercise 4e  $a = 2, b = 5, c = 7$

- (a) answer 5 wrong
- (b) answer 2 wrong
- ▶ (c) answer 1 correct
- (d) answer 4 wrong
- (e) answer 3 wrong

7. (2 punti) exercise 9c  $a = 2, b = 3, c = 4$

- (a) answer 4 wrong
- ▶ (b) answer 1 correct
- (c) answer 2 wrong
- (d) answer 5 wrong
- (e) answer 3 wrong

|          |
|----------|
| 15 punti |
|----------|



8. (1 punto) exercise 1b  $a = 2$

- (a) answer 3 wrong
- ▶ (b) answer 1 correct
- (c) answer 2 wrong

9. (1 punto) exercise 14a  $a = 4, b = 3, c = 7$   $\alpha_i = 5$   
 $\alpha_{hi} = 7$

- (a) answer 5 wrong
- (b) answer 3 wrong
- ▶ (c) answer 1 correct
- (d) answer 4 wrong
- (e) answer 2 wrong

Soluzione: This is the solution  $a = 4, b = 3, c = 7$

10. (1 punto)  $a = 12, b = 13, c = 3, k = 5$   
Evaluate with two exact decimals

$$12 : 3 = \boxed{4}$$

ALL THE PROBLEMS OF A FILE

11. (1 punto) exercise 11b

$\{a, c, z\}$

- (a) answer 3 wrong
- (b) answer 2 wrong
- ▶ (c) answer 1 correct

12. (1 punto) exercise 11a

$\{b, c, x\}$

- ▶ (a) answer 1 correct
- (b) answer 3 wrong
- (c) answer 2 wrong

SOME OTHER QUESTIONS

1. (2 punti) exercise 13c  $a = 4, b = 4, c = 6$

- (a) answer 5 wrong
- (b) answer 2 wrong
- (c) answer 3 wrong

- ▶ (d) answer 1 correct
- (e) answer 4 wrong

2. (1 punto) exercise 12c  $a = 3, b = 5, c = 3$

- ▶ (a) answer 1 correct
- (b) answer 5 wrong
- (c) answer 4 wrong
- (d) answer 2 wrong
- (e) answer 3 wrong

## Part two

Some other instructions.

ESERCIZIO 1. Let  $A = \{a, x, y\}$  and  $B = \{a, y, z\}$ .

(a) (2 punti) List (without repetition) the elements of the set  $A \cup B$

*Soluzione:*

$$A \cup B = \{a, x, y, z\}$$

(b) (2 punti) List (without repetition) the elements of the set  $A \cap B$

*Soluzione:*

$$A \cap B = \{a, y\}$$

|         |
|---------|
|         |
| 4 punti |

An example of matching question.

ESERCIZIO 2.  $a = 12, b = 13, c = 2$

(C)  $12 \times 13$

(A)  $3^2$

(B)  $36 : 12$

(D)  $12 \times 13$

(E)  $12 \times 13$

(A) 9

(B) 3

(C) 156

(D) 156

(E) 156

|                |
|----------------|
|                |
| <i>3 punti</i> |

An example of “tabella” question.

ESERCIZIO 3. Complete the following table of derivatives:

| Function        | Derivative        |
|-----------------|-------------------|
| $f(x) = x^2$    | $f'(x) = 2x$      |
| $f(x) = \sin x$ | $f'(x) = \cos x$  |
| $f(x) = \cos x$ | $f'(x) = -\sin x$ |

5 punti

**Soluzione Versione n. 1**

1. e
2. c
3. e
4. a
5. a
6. c
7. b
8. d
9. e
10. 3
11. a
12. b

1. a
2. e

**Soluzione Versione n. 2**

1. d
2. a
3. c
4. b
5. d
6. a
7. 3,5
8. a
9. b
10. b
11. c
12. c

1. a
2. d

**Soluzione Versione n. 3**

1. a
2. a
3. a
4. c
5. c
6. b
7. 3,25
8. a
9. c
10. a
11. b
12. a

1. b
2. d

**Soluzione Versione n. 4**

1. a
2. e
3. d
4. e
5. a
6. c
7. b
8. b
9. c
10. 4
11. c
12. a

1. d
2. a