

The name of the exam 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 $a = 3, b = 5, c = 5$
 $alphi = 11$ $alphi = 5$

- (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) 5×4

(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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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

$$14 : 4 = \boxed{3,5}$$

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) 12×14

(A) 12×14

(C) 12×14

(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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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

$$13 : 4 =$$

3,25

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) 4×3

(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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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 $a = 4, b = 3, c = 7$
 $alpha_i = 5, alpha_{ii} = 7$

- (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) 12×13

(A) 3^2

(B) $36 : 12$

(D) 12×13

(E) 12×13

(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