The name of the exam 3rd January 2014	Prof.	Student's signature
Last Name:	First Name:	Student's ID:

INSTRUCTIONS

- Write here your instructions
- two
- three

Part One

8 points

1. *(1 point)* exercise 2b $a = 2$, $b = 4$, $c = 2$

(a) answer 4 wrong

(b) answer 5 wrong

(c) answer 3 wrong

(d) answer 2 wrong

► (e) answer 1 correct

2. *(1 point)* exercise 4c $a = 5$, $b = 2$, $c = 4$

(a) answer 5 wrong

(b) answer 2 wrong

► (c) answer 1 correct

(d) answer 3 wrong

(e) answer 4 wrong

3. *(1 point)* exercise 1a

(a) answer 3 wrong

► (b) answer 1 correct

(c) answer 2 wrong

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

(a) answer 3 wrong

► (b) answer 1 correct

(c) answer 4 wrong

(d) answer 5 wrong

(e) answer 2 wrong

1. *(2 points)* exercise 13b $a = 2$, $b = 2$, $c = 8$

► (a) answer 1 correct

(b) answer 4 wrong

(c) answer 5 wrong

(d) answer 2 wrong

(e) answer 3 wrong

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

(a) answer 2 wrong

► (b) answer 1 correct

(c) answer 4 wrong

(d) answer 3 wrong

(e) answer 5 wrong

3. *(1 point)* exercise 14c $a = 3$, $b = 5$, $c = 4$

(a) answer 3 wrong

(b) answer 4 wrong

(c) answer 5 wrong

► (d) answer 1 correct

(e) answer 2 wrong

4. *(1 point)* exercise 11a

$$\{a,\ b,\ x\}$$

(a) answer 2 wrong

(b) answer 3 wrong

► (c) answer 1 correct

Part two

Some other instructions.

EXERCISE 1. Solve the following equations:

4 points

Equation	Solution
$x^2 + 9x + 20 = 0$	$x = 5;\ x = 4$
$x^2 - 9x + 20 = 0$	$x = -5;\ x = -4$
$x^2 + 1x - 20 = 0$	$x = -5;\ x = 4$
$x^2 - 1x - 20 = 0$	$x = 5;\ x = -4$

EXERCISE 2. List all the elements of the power set (set of subsets) of

$$\{c,\ x,\ y\}$$

4 points

Solution:

$$\emptyset,\ \{c\},\ \{x\},\ \{y\},\ \{c,x\},\ \{c,y\},\ \{x,y\},\ \{c,x,y\}$$

EXERCISE 3. $a = 13$, $b = 13$, $c = 4$, $k = 4$

Evaluate $13 - 4 =$ 9 $13 : 4$ with two exact decimals 3.25 and $4^4 =$ 256

4 points

EXERCISE 4.

$a = 5$, $b = 3$, $c = 7$

3 points

(B)	$7 - 5$	(A)	15
(A)	5×3	(B)	2
(C)	$5 + 3$	(C)	8

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Part One

8 points

1. *(1 point)* exercise 4d $a = 5$, $b = 5$, $c = 3$

(a) answer 2 wrong

(b) answer 5 wrong

(c) answer 3 wrong

(d) answer 4 wrong

► (e) answer 1 correct

2. *(1 point)* exercise 1b

► (a) answer 1 correct

(b) answer 3 wrong

(c) answer 2 wrong

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

► (a) answer 1 correct

(b) answer 2 wrong

(c) answer 4 wrong

(d) answer 3 wrong

(e) answer 5 wrong

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

► (a) answer 1 correct

(b) answer 2 wrong

(c) answer 5 wrong

(d) answer 3 wrong

(e) answer 4 wrong

1. *(1 point)* exercise 14d $a = 3$, $b = 4$, $c = 2$

(a) answer 2 wrong

(b) answer 3 wrong

(c) answer 4 wrong

(d) answer 5 wrong

► (e) answer 1 correct

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

(a) answer 4 wrong

(b) answer 3 wrong

(c) answer 2 wrong

(d) answer 5 wrong

► (e) answer 1 correct

3. *(1 point)* exercise 11b

$$\{a,\ x,\ y\}$$

► (a) answer 1 correct

(b) answer 2 wrong

(c) answer 3 wrong

4. *(2 points)* exercise 13a $a = 5$, $b = 5$, $c = 8$

(a) answer 5 wrong

(b) answer 4 wrong

► (c) answer 1 correct

(d) answer 2 wrong

(e) answer 3 wrong

Part two

Some other instructions.

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

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

Solution:

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

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

Solution:

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

4 points

EXERCISE 2. 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 points

EXERCISE 3. $a = 14$, $b = 15$, $c = 2$, $k = 4$

If $A = \{a, b, c, d, 14, 2, 4\}$ and $B = \{c, a, 2, 1, 15\}$ then

$A \cup B =$ $\{a, b, c, d, 14, 2, 4, 15, 1\}$

$A \cap B =$ $\{a, c, 2\}$

$A \setminus B =$ $\{b, d, 4\}$

4 points

EXERCISE 4. $a = 15$, $b = 15$, $c = 2$

(C)	5^2	(A)	5
(B)	15×15	(B)	225
(A)	$75 : 15$	(C)	25

3 points

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Part One

8 points

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

(a) answer 2 wrong

(b) answer 4 wrong

► (c) answer 1 correct

(d) answer 3 wrong

(e) answer 5 wrong

2. *(1 point)* exercise 1a

(a) answer 3 wrong

(b) answer 2 wrong

► (c) answer 1 correct

3. *(1 point)* exercise 4e $a = 3$, $b = 2$, $c = 7$

(a) answer 2 wrong

► (b) answer 1 correct

(c) answer 5 wrong

(d) answer 3 wrong

(e) answer 4 wrong

4. *(2 points)* exercise 3b $a = 2$, $b = 2$, $c = 2$

(a) answer 2 wrong

► (b) answer 1 correct

(c) answer 3 wrong

(d) answer 4 wrong

(e) answer 5 wrong

1. *(1 point)* exercise 11a

$$\{b,\ c,\ y\}$$

► (a) answer 1 correct

(b) answer 2 wrong

(c) answer 3 wrong

2. *(2 points)* exercise 13b $a = 5$, $b = 4$, $c = 5$

(a) answer 3 wrong

► (b) answer 1 correct

(c) answer 5 wrong

(d) answer 4 wrong

(e) answer 2 wrong

3. *(1 point)* exercise 14e $a = 2$, $b = 2$, $c = 3$

(a) answer 3 wrong

(b) answer 5 wrong

► (c) answer 1 correct

(d) answer 4 wrong

(e) answer 2 wrong

4. *(1 point)* exercise 12c $a = 4$, $b = 5$, $c = 7$

(a) answer 5 wrong

(b) answer 3 wrong

► (c) answer 1 correct

(d) answer 2 wrong

(e) answer 4 wrong

Part two

Some other instructions.

EXERCISE 1. Solve the following equations:

4 points

Equation	Solution
$x^2 + 10x + 16 = 0$	$x = 8;\ x = 2$
$x^2 - 10x + 16 = 0$	$x = -8;\ x = -2$
$x^2 + 6x - 16 = 0$	$x = -8;\ x = 2$
$x^2 - 6x - 16 = 0$	$x = 8;\ x = -2$

EXERCISE 2.
$a = 4$, $b = 4$, $c = 8$

3 points

(A) $8 - 4$ (A) 4

(B) 4×4 (B) 16

(C) $4 + 4$ (C) 8

EXERCISE 3. $a = 13$, $b = 15$, $c = 2$, $k = 5$

4 points

Evaluate $13 - 2 =$ 11 $15 : 5$ with two exact decimals 3.00 and $5^2 =$ 25

EXERCISE 4. List all the elements of the power set (set of subsets) of

4 points

$$\{a,\ b,\ c\}$$

Solution:

$$\emptyset,\ \{a\},\ \{b\},\ \{c\},\ \{a, b\},\ \{a, c\},\ \{b, c\},\ \{a, b, c\}$$

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INSTRUCTIONS

- Write here your instructions
- two
- three

Part One

8 points

1. *(1 point)* exercise 2a $a = 5$, $b = 4$, $c = 3$

(a) answer 2 wrong

(b) answer 4 wrong

▶ (c) answer 1 correct

(d) answer 3 wrong

(e) answer 5 wrong

2. *(1 point)* exercise 4b $a = 2$, $b = 5$, $c = 5$

(a) answer 4 wrong

(b) answer 2 wrong

▶ (c) answer 1 correct

(d) answer 5 wrong

(e) answer 3 wrong

3. *(1 point)* exercise 1b

(a) answer 2 wrong

▶ (b) answer 1 correct

(c) answer 3 wrong

4. *(2 points)* exercise 3c $a = 2$, $b = 3$, $c = 8$

(a) answer 5 wrong

(b) answer 3 wrong

▶ (c) answer 1 correct

(d) answer 4 wrong

(e) answer 2 wrong

1. *(2 points)* exercise 13c $a = 5$, $b = 5$, $c = 6$

▶ (a) answer 1 correct

(b) answer 5 wrong

(c) answer 3 wrong

(d) answer 4 wrong

(e) answer 2 wrong

2. *(1 point)* exercise 11b

$$\{a,\ b,\ c\}$$

▶ (a) answer 1 correct

(b) answer 3 wrong

(c) answer 2 wrong

3. *(1 point)* exercise 12a $a = 4$, $b = 4$, $c = 7$

(a) answer 3 wrong

▶ (b) answer 1 correct

(c) answer 4 wrong

(d) answer 5 wrong

(e) answer 2 wrong

4. *(1 point)* exercise 14b $a = 4$, $b = 2$, $c = 6$

(a) answer 3 wrong

▶ (b) answer 1 correct

(c) answer 2 wrong

(d) answer 4 wrong

(e) answer 5 wrong

Part two

Some other instructions.

EXERCISE 1. $a = 15$, $b = 14$, $c = 4$, $k = 5$
If $A = \{a, b, c, d, 15, 4, 5\}$ and $B = \{c, a, 4, 1, 14\}$ then
$A \cup B =$ $\{a, b, c, d, 15, 4, 5, 14, 1\}$
$A \cap B =$ $\{a, c, 4\}$
$A \setminus B =$ $\{b, d, 5\}$

4 points

EXERCISE 2. Let $A = \{a, b, c\}$ and $B = \{a, c, x\}$.

(a) *(2 points)* List (without repetition) the elements of the set $A \cup B$
Solution:

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

4 points

(b) *(2 points)* List (without repetition) the elements of the set $A \cap B$
Solution:

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

EXERCISE 3. $a = 14$, $b = 15$, $c = 3$

(C)	14×15	(A)	27
(B)	$42 : 14$	(B)	3
(A)	3^3	(C)	210

3 points

EXERCISE 4. 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 points

Solution Version n. 1

1. e
2. c
3. b
4. b

1. a
2. b
3. d
4. c

Solution Version n. 2

1. e
2. a
3. a
4. a

1. e
2. e
3. a
4. c

Solution Version n. 3

1. c
2. c
3. b
4. b

1. a
2. b
3. c
4. c

Solution Version n. 4

1. c
2. c
3. b
4. c

1. a
2. a
3. b
4. b