Advanced Number Theory

Click on a question number to see how your answers were marked and, where available, full solutions.

Question Number		Sc	ore
1	3	/	3
2	3	/	3
3	1	/	1
4	1	/	1
5	1	/	1
6	1	/	1
Total	10	1	10 (100%)

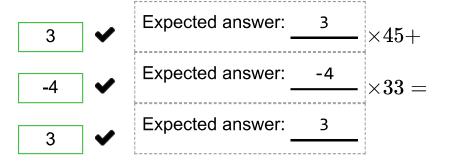
Performance Summary

Exam Name:	Advanced Number Theory
Session ID:	0654725731
Exam Start:	Wed Jun 12 2024 16:20:11
Exam Stop:	Wed Jun 12 2024 16:31:21
Time Spent:	0:11:10

Question 1

Bézout Coefficients

Find the Bézout coefficients and the gcd of 45 and 33:



a

✓ Your answer is correct.

b

✓ Your answer is correct.

gcd

✓ Your answer is correct.

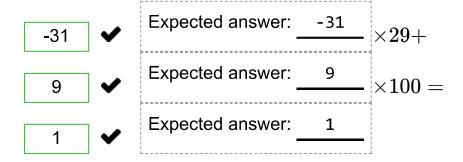
You scored 3 marks for this part.

Score: 3/3 ✔

Question 2

Bézout Coefficients

Find the Bézout coefficients and the gcd of 29 and 100:



a

✓ Your answer is correct.

b

Your answer is correct.

gcd

✓ Your answer is correct.

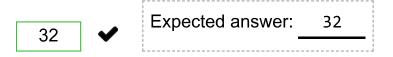
You scored 3 marks for this part.

Score: 3/3 **✓**

Question 3

Modular Inverse

What is the modular inverse of $50 \bmod 39$? (Make sure the number is between 0 and 38).



✓ Your answer is correct. You were awarded 1 mark.

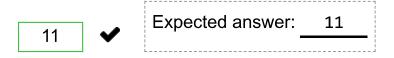
You scored 1 mark for this part.

Score: 1/1 **✓**

Question 4

Modular Inverse

What is the modular inverse of $41 \bmod 75$? (Make sure the number is between 0 and 74).



✓ Your answer is correct. You were awarded 1 mark.

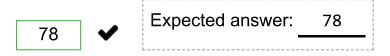
You scored 1 mark for this part.

Score: 1/1 **✓**

Question 5

Modular Inverse

Solve for x in $75x \equiv 42 \mod 88$? so that x is between 0 and 87.



✓ Your answer is correct. You were awarded 1 mark.

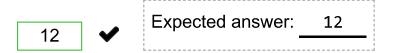
You scored 1 mark for this part.

Score: 1/1 **✓**

Question 6

Modular Inverse

Solve for x in $57x \equiv 26 \mod 47$? so that x is between 0 and 46.



✓ Your answer is correct. You were awarded 1 mark.

You scored 1 mark for this part.

Score: 1/1 **✓**

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