

## Unit 9 - Week 7

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## Assignment 7

The due date for submitting this assignment has passed.  
As per our records you have not submitted this assignment.

**Due on 2020-11-04, 23:59 IST.**

Please note that multiple options may be correct.

1) What is the number of distinct solutions of  $2x^2 + 5x - 24 = 0$  in  $\mathbb{Z}_{31}$ ?

0 points

- 0,  
 1,  
 2,  
 None of the above.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
1,

2) What is the number of distinct solutions of  $2x^2 + 10x - 50 = 0$  in  $\mathbb{Z}_{99}$ ?

0 points

- 0,  
 1,  
 2,  
 None of the above.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
2,

3) Which of the following  $n$  have the property that  $U_n$  has 8 square roots of 1?

0 points

- 140,  
 308,  
 396,  
 572,  
 825,  
 1989.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
140,  
308,  
396,  
572,  
825,  
1989.

4) Which of the following  $n$  have the property that  $U_n$  has 16 square roots of 1?

1 point

- 308,  
 396,  
 504,  
 616,  
 1001,  
 1155.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
504,  
616,  
1155.

5) Which of the following  $n$  have the property that  $\left(\frac{n}{37}\right) = 1$ ?

1 point

- 10,  
 11,  
 12,  
 13,  
 14,  
 15.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
10,  
11,  
12,

6) Which of the following  $n$  have the property that  $\left(\frac{n}{41}\right) = 1$ ?

1 point

- 17,  
 18,  
 19,  
 20,  
 21,  
 22.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
18,  
20,  
21,

7) Which of the following primes  $p$  have the property that  $\left(\frac{30}{p}\right) = 1$ ?

1 point

- 31,  
 37,  
 41,  
 43,  
 47,  
 53.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
31,  
43,

8) Which of the following primes  $p$  have the property that  $\left(\frac{210}{p}\right) = 1$ ?

1 point

- 59,  
 61,  
 67,  
 71,  
 73,  
 79.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
61,  
67,  
73,  
79.

9) Which of the following congruence classes of primes  $p$  have the property that  $\left(\frac{10}{p}\right) = 1$ ?

1 point

- $p \equiv 1 \pmod{40}$ ,  
  $p \equiv 3 \pmod{40}$ ,  
  $p \equiv 7 \pmod{40}$ ,  
  $p \equiv 9 \pmod{40}$ ,  
  $p \equiv 11 \pmod{40}$ ,  
  $p \equiv 13 \pmod{40}$ .

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
 $p \equiv 1 \pmod{40}$ ,  
 $p \equiv 3 \pmod{40}$ ,  
 $p \equiv 9 \pmod{40}$ ,  
 $p \equiv 13 \pmod{40}$ .

10) Which of the following polynomials  $f(x)$  have a root modulo every prime  $p$ ?

1 point

- $(x^2 - 2)(x^2 - 3)(x^2 - 6)$ ,  
  $(x^2 - 2)(x^2 - 5)(x^2 - 8)$ ,  
  $(x^2 - 3)(x^2 - 5)(x^2 - 15)$ ,  
  $(x^2 - 3)(x^2 - 6)(x^2 - 9)$ ,  
  $(x^2 - 5)(x^2 - 7)(x^2 - 35)$ ,  
  $(x^2 - 5)(x^2 - 7)(x^2 - 11)$ .

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
 $(x^2 - 2)(x^2 - 3)(x^2 - 6)$ ,  
 $(x^2 - 3)(x^2 - 5)(x^2 - 15)$ ,  
 $(x^2 - 3)(x^2 - 6)(x^2 - 9)$ ,  
 $(x^2 - 5)(x^2 - 7)(x^2 - 35)$ .