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MATH 407: HW 04

1.3 **1** Solve the following congruence

d $19x \equiv 1 \pmod{36}$

Ans □

4 Solve the following congruence: $20x \equiv 12 \pmod{72}$

Ans □

7 The smallest positive solution of the congruence $ax \equiv 0 \pmod{n}$ is called the additive order of a modulo n. Find the additive orders of each of the following elements, by solving the appropriate congruences.

b 7 modulo 12

Ans □

d 12 modulo 18

Ans □

14 Find the units digit of $3^{29} + 11^{12} + 15$.

`Hint`: Choose an appropriate modulus n, and then reduce modulo n.

Ans □

16 Solve the following congruences by trial and error.

a $x^3 + 2x + 2 \equiv 0 \pmod{5}$

Ans □

20 Solve the following system of congruences.

$$2x \equiv 5 \pmod{7} \qquad\qquad 3x \equiv 4 \pmod{8}$$

Ans □