MTH 4441 - HW #4 - Modulo Arithmetic

Fall 2017

Pat Rossi Name _____

1. Compute the congruent values modulo n:

   (a) $(26 + 35) \equiv \_\_\_\_ \bmod 5$

   (b) $(84 + 91) \equiv \_\_\_\_ \bmod 13$

   (c) $(29 + 57) \equiv \_\_\_\_ \bmod 6$

   (d) $(45 + 36) \equiv \_\_\_\_ \bmod 12$

   (e) $(45 + 36) \equiv \_\_\_\_ \bmod 9$

2. Compute the congruent values modulo n:

   (a) $(26 \cdot 35) \equiv \_\_\_\_ \bmod 5$

   (b) $(84 \cdot 92) \equiv \_\_\_\_ \bmod 13$

   (c) $(29 \cdot 57) \equiv \_\_\_\_ \bmod 6$

   (d) $(45 \cdot 36) \equiv \_\_\_\_ \bmod 12$

   (e) $(45 \cdot 36) \equiv \_\_\_\_ \bmod 8$

   (f) $(27 \cdot 36) \equiv \_\_\_\_ \bmod 15$

3. Express the following integers as a "proper remainder" modulo n.

   (a) $26 \equiv \_\_\_\_ \bmod 7$

   (b) $-32 \equiv \_\_\_\_ \bmod 5$

   (c) $-29 \equiv \_\_\_\_ \bmod 7$

   (d) $15 \equiv \_\_\_\_ \bmod 8$

   (e) $-15 \equiv \_\_\_\_ \bmod 8$

   (f) $-25 \equiv \_\_\_\_ \bmod 8$

   (g) $23 \equiv \_\_\_\_ \bmod 8$

4. Compute the congruent values modulo n:

   (a) $26^{10} \equiv \_\_\_\_ \bmod 5$

   (b) $26^{10} \equiv \_\_\_\_ \bmod 12$

(c) $45^{14} \equiv \_\_\_\_ \bmod 7$

(d) $36^{25} \equiv \_\_\_\_ \bmod 5$

(e) $36^{15} \equiv \_\_\_\_ \bmod 8$

(f) $29^{11} \equiv \_\_\_\_ \bmod 5$