

Worksheet 8

Math 391, Abstract Algebra

Friday, October 16, 2020

Work on §1.3 #21, which is part of next Monday's homework. Use a computer program (or web site) to find Bézout coefficients if you need to.

(a) $x \equiv 1 \pmod{3}$ and $x \equiv 1 \pmod{5}$.

(b) $x \equiv 1 \pmod{4}$ and $x \equiv 7 \pmod{13}$.

(c) $x \equiv 3 \pmod{4}$ and $x \equiv 4 \pmod{5}$ and $x \equiv 3 \pmod{7}$.

(d) $19x \equiv 1 \pmod{140}$.

Hint: $140 = 4 \cdot 5 \cdot 7$. How can you recycle your answer to part (c)?

(e) $x \equiv 3 \pmod{9}$ and $x \equiv 18 \pmod{24}$.

(f) $x \equiv 4 \pmod{105}$ and $x \equiv 29 \pmod{80}$.

(g) $x \equiv 11 \pmod{142}$ and $x \equiv 25 \pmod{86}$.