The problems for the 1st set of Hwk are

§ 5.1 : 6, 15, (16) 17, 20, 25, (26), 27, 28

§ 5.2 : (5) 10, (16), 22, 25, 29, (30)

For problems 25 and 26, they are only responsible for doing # 15, 16, 17, and 20.

please grade the circled problem for 1 pts. each. The rest may have 1/2 point without grading.

Total = 10.5

Thank you.

§ 5.1 #16: 220, 1400

$220 = 2^2 \cdot 5^1 \cdot 11^1 = 2^2 \cdot 5^1 \cdot 7^0 \cdot 11^1$

$1400 = 2^3 \cdot 5^2 \cdot 7^1 = 2^3 \cdot 5^2 \cdot 7^1 \cdot 11^0$

$GCD(1400, 220) = 2^{\min(2,3)} \cdot 5^{\min(1,2)} \cdot 7^{\min(0,1)} \cdot 11^{\min(1,0)}$

$= 2^2 \cdot 5^1 \cdot 7^0 \cdot 11^0 = 20$

---

§ 5.1 (26) (for #16 only)

$LCM(1400, 220) = 2^{\max(2,3)} \cdot 5^{\max(1,2)} \cdot 7^{\max(0,1)} \cdot 11^{\max(1,0)}$

$= 2^3 \cdot 5^2 \cdot 7^1 \cdot 11^1 = 15\,400$

$GCD(1400, 220) \cdot LCM(1400, 220) = (20)(15\,400) = 308\,000$

$(1400)(220) = 308\,000$ ✓ =

(§5.2 #5) $n = 128$, $k+1 = \lfloor 1 + \lg 128 \rfloor = 8$

---

#16) $n = 223$

$223 = 2(111) + 1$ 1's bit

$111 = 2(55) + 1$ 2's "

$55 = 2(27) + 1$ 4's "

$27 = 2(13) + 1$ 8's "

$13 = 2(6) + 1$ 16's "

$6 = 2(3) + 0$ 32's "

$3 = 2(1) + 1$ 64's "

$1 = 2(0) + 1$ 128's "

$11011111_2$

---

#30) $209D_{16} = 2 \cdot 16^3 + 0 \cdot 16^2 + 9 \cdot 16^1 + 13 \cdot 16^0$

$= 8349_{10}$