

Section 4.2

Ex. 2

a) $321 = (101000001)_2$

Ex. 6

a) $(11110111)_2 = (367)_8$

Ex. 12

$(1100001100011)_2 = (1863)_{16}$

Ex. 22

a) $(112)_3, (210)_3$ ① sum: $(112)_3 + (210)_3 = (1022)_3$

② product $(112)_3 = 14$
 $(210)_3 = 21$

$14 \times 21 = 294$
 $= (101220)_3$

Ex. 34

a) $22 = (010110)_2$

Ex. 40

a) $22 = (010110)_2$

b) 14

c) -7

d) -9

Section 4.3

Ex. 24

a) $2^2 \cdot 3^3 \cdot 5^5, 2^5 \cdot 3^3 \cdot 5^2$ Gcd = $2^2 \cdot 3^3 \cdot 5^2 = 2700$

b) $2 \cdot 3 \cdot 5 \cdot 7 \cdot 11 \cdot 13, 2^{11} \cdot 3^9 \cdot 11 \cdot 17^{14}$ Gcd = $2 \cdot 3 \cdot 11$

c) $17, 17^{17}$ Gcd = 17

d) $2^2 \cdot 7, 5^3 \cdot 13$ Gcd = 1

e) $0, 5$ Gcd = NULL

f) $2 \cdot 3 \cdot 5 \cdot 7, 2 \cdot 3 \cdot 5 \cdot 7$ Gcd = $2 \cdot 3 \cdot 5 \cdot 7 = 210$

Ex-26

a) $lcm = 2^5 \cdot 3^3 \cdot 5^5$

b) $lcm = 2^{11} \cdot 3^9 \cdot 5 \cdot 7 \cdot 11 \cdot 13 \cdot 17^{14}$

c) $lcm = 17^{17}$

d) $lcm = 2^2 \cdot 3^3 \cdot 7 \cdot 13$

e) $lcm = \text{NULL}$

f) $lcm = 2 \cdot 3 \cdot 5 \cdot 7$

Ex-40

a) $\gcd(9, 11) \begin{cases} 11 = 9 + 2 \\ 9 = 2 \cdot 4 + 1 \end{cases} \quad \begin{aligned} \therefore 1 &= 9 - 2 \cdot 4 \quad (2 = 11 - 9) \\ &= 9 - 4 \cdot (11 - 9) \\ &= 5 \cdot 9 - 4 \cdot 11 \\ \therefore \gcd(9, 11) &= 1 \end{aligned}$