

Q 3

(a)

i) 11, 15, 19

$$\gcd(11, 15) = 1$$

$$\gcd(15, 19) = 1$$

$$\gcd(11, 19) = 1$$

Therefore, they are pairwise relatively prime.

ii) 14, 15, 21

$$\gcd(14, 15) = 1 \quad ; \quad \gcd(15, 21) = 3 \text{ (not relatively)}$$

$$\gcd(14, 21) = 7 \text{ (not relatively prime)}.$$

Therefore, they aren't pairwise relatively prime.

iii) 12, 17, 31, 37

So

$$\gcd(12, 17) = 1$$

$$\gcd(17, 31) = 1$$

$$\gcd(31, 37) = 1$$

$$\gcd(12, 31) = 1$$

$$\gcd(12, 37) = 1$$

Therefore, they are pairwise relatively prime.

iv) 7, 8, 9, 11

$$\gcd(7, 8) = 1 \quad ; \quad \gcd(7, 9) = 1 \quad ; \quad \gcd(7, 11) = 1$$

$$\gcd(8, 9) = 1 \quad \gcd(8, 11) = 1 \quad \gcd(9, 11) = 1$$

Therefore, they are pairwise relatively prime.

(b)

i) 88

2	88
2	44
2	22
11	11
	1

$$88 = 2^3 \times 11$$

ii) 126

2	126
3	63
3	21
7	7
	1

$$126 = 2 \times 3^2 \times 7$$

iii) 729

3	729
3	243
3	81
3	27
3	9
3	3
	1

$$729 = 3^6$$

iv) 1001

7	1001
11	143
13	13
	1

$$1001 = 7 \times 11 \times 13$$

v) 1111

11	1111
101	101
	1

$$1111 = 11 \times 101$$

vi) 909

3	909
101	101
	1

$$909 = 3 \times 101$$