Chapter 4

Playing with numbers

Exercise 4.1

1. Multiple Choice Questions (MCQ)

(i) A number, which is a factor of every number, is
(c) 1

(ii) The first multiple of 4 is
(a) 4

(iii) The common factor (except 1) of 112, 133 and 119 is
(d) 7

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2. Find the factors of the following numbers:

(i) 8 = **1, 2, 4, 8**
(ii) 18 = **1, 2, 3, 6, 9, 18**
(iii) 23 = **1, 23** *(Prime number)*
(iv) 30 = **1, 2, 3, 5, 6, 10, 15, 30**
(v) 48 = **1, 2, 3, 4, 6, 8, 12, 16, 24, 48**
(vi) 324 = **1, 2, 3, 4, 6, 9, 12, 18, 27, 36, 54, 81, 108, 162, 324**
(vii) 168 = **1, 2, 3, 4, 6, 7, 8, 12, 14, 21, 24, 28, 42, 56, 84, 168**
(viii) 54 = **1, 2, 3, 6, 9, 18, 27, 54**

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3. Is 87 a factor of 1,748,352?

Check by dividing:
1,748,352 ÷ 87 = **20,104**
So, YES, 87 is a factor of 1,748,352.

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4. Find the multiples of the following numbers:

(*We'll give first five multiples for clarity*.)

(i) 5 = **5, 10, 15, 20, 25,30…..**
(ii) 12 = **12, 24, 36, 48, 60**
(iii) 6 = **6, 12, 18, 24, 30**
(iv) 11 = **11, 22, 33, 44, 55**
(v) 4 = **4, 8, 12, 16, 20**
(vi) 16 = **16, 32, 48, 64, 80**

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5. Write down the first five multiples of the given numbers:

(i) 6 = **6, 12, 18, 24, 30**
(ii) 12 = **12, 24, 36, 48, 60**
(iii) 3 = **3, 6, 9, 12, 15**
(iv) 21 = **21, 42, 63, 84, 105**
(v) 25 = **25, 50, 75, 100, 125**
(vi) 13 = **13, 26, 39, 52, 65**

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6. Find:

(i) The eighth multiple of 80 = **80 × 8 = 640**
(ii) Multiples of 5 between 32 and 62 = **35, 40, 45, 50, 55, 60**

Exercise 4.2

1. Multiple Choice Questions

(i) The numbers which are not multiples of 2 are
→ **(d) odd**

(ii) An example of twin primes is
→ **(a) 11, 13**

(iii) Sum of two prime numbers is
→ **(d) may be even or odd**

(iv) A prime number has at the most
→ **(b) 2 factors**

(v) Factors of 15 are
→ **(c) 1, 3, 5 and 15**

(vi) The three prime numbers greater than 100 are
→ **(d) 101, 103 and 107**

(vii) Which of the following is an example of consecutive numbers?
→ **(c) 10, 11, 12, 13**

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2. True or False

(i) Two prime numbers are always co-prime.
→ **True**

(ii) Odd numbers always end in 1, 3, 4, 6, 9.
→ **False** (they end in 1, 3, 5, 7, 9)

(iii) 9, 11, 13 and 15 are alternate numbers.
→ **True** (they form a sequence with common difference 2)

(iv) All the odd numbers from 21 to 30 are 21, 23, 25, 27 and 29.
→ **True**

(v) Sum of factors of 12 is 38.
→ **False** (1+2+3+4+6+12 = 28)

(vi) All prime numbers except 2 are odd numbers.
→ **True**

3. Prime numbers in given ranges
(i) Between 10 and 19: 11, 13, 17, 19
(ii) Between 16 and 27: 17, 19, 23

4. Which are composite?

- 39 – composite (divisible by 3)
- 47 – prime
- 57 – composite (3 × 19)
- 69 – composite (3 × 23)
- 83 – prime
- 93 – composite (3 × 31)
- 103 – prime

5. Even or not?
(i) 9 – not even (odd)
(ii) 16 – even

6. Odd or not?
(i) 19 – (yes) odd
(ii) 21 – (yes) odd

7. Express as sum of twin primes

Twin primes are pairs of primes differing by 2.
(i) 24 = 11 + 13
(ii) 84 = 41 + 43

8. Which pairs are co-primes?

Two integers are co-prime if their greatest common divisor is 1.

(i) 20, 25 – gcd = 5 → not co-prime
(ii) 18, 35 – gcd = 1 → co-prime

9. Express as sum of two odd primes

By Goldbach's conjecture (verified for small even numbers).
(i) 80 = 7 + 73
(ii) 100 = 3 + 97

10. Ten pairs of co-prime numbers

Examples (gcd = 1 in each):
(2, 3), (3, 4), (4, 9), (8, 15), (14, 15), (18, 35), (25, 49), (16, 27), (17, 20), (9, 28)

A **co-prime pair** (or **relatively prime** pair) is just two integers whose **greatest common divisor (gcd)** is **1**. It **does not** mean that each number in the pair has to be prime itself—only that they share **no prime factors** in common.

Definition: gcd(a,b)=1\gcd(a,b)=1gcd(a,b)=1 ⇒ aaa and bbb are co-prime.

Key point: Either or both numbers can be composite, as long as they don't share any factor >1.

Examples : **(8, 15)** are co-prime even though $8=2^3$ and 15=3·5 (no overlap of prime factors).
(14, 15) are co-prime (14=2·7, 15=3·5).
(4, 9) are co-prime ($4=2^2$, $9=3^2$).
(17, 20) are co-prime (17 is prime, $20=2^2$·5).
Contrast with a non–co-prime pair like (6, 15): 6=2·3, 15=3·5 → gcd=3 → **not** co-prime.
So you don't need both numbers to be prime—just that their only common divisor is 1.

11. Verify that 496 is a perfect number

Proper divisors of 496: 1, 2, 4, 8, 16, 31, 62, 124, 248
Sum = 1+2+4+8+16+31+62+124+248 = 496

12. Two consecutive composite numbers < 10 with no prime between them

8 and 9 (both composite; no integer lies between them)

13. Other three-digit "permutable" primes

A permutable prime remains prime under all digit permutations.
Besides 199 (with 919, 991), the only other three-digit sets are:

- {113, 131, 311}
- {337, 373, 733}

Exercise 4.3 Solutions

1. Multiple-Choice Questions

(i) Which of the following numbers is divisible by 2?
A number is divisible by 2 if its last digit is even (0, 2, 4, 6, 8).

- 250808 – ends in 8 → divisible
- 12711 – ends in 1 → not
- 39159 – ends in 9 → not
- 40953 – ends in 3 → not

Answer: (a) 250808

(ii) Which of the following numbers is divisible by 6?
A number is divisible by 6 if and only if it is divisible by 2 **and** by 3.

- 5024 – even (÷2), sum 5+0+2+4=11 (not ÷3) → no
- 7125 – odd → no
- 301806 – even, sum 3+0+1+8+0+6=18 (÷3) → yes
- 7123 – odd → no

Answer: (c) 301806

(iii) Which of the following numbers is divisible by both 5 and 10?

- Divisible by 5 ⇔ last digit is 0 or 5.
- Divisible by 10 ⇔ last digit is 0.

Only those ending in 0 satisfy **both**.

- 1055 – ends 5 (÷5 only)
- 2305 – ends 5
- 3124 – ends 4
- 410000 – ends 0

Answer: (d) 410000

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2. Check divisibility by 4

Rule: A number is divisible by 4 if its last two digits form a number divisible by 4.
1. 583 668 → last two digits 68; 68÷4=17 → **yes**
2. 986 219 → last two 19; 19÷4=4 R3 → **no**
3. 1 403 731 → last two 31; 31÷4=7 R3 → **no**

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3. Check divisibility by 6

Rule: Divisible by 6 ⇔ divisible by 2 and 3.
1. 597 306 → even; sum 5+9+7+3+0+6=30 (÷3) → **yes**
2. 186 203 → odd → **no**
3. 836 526 → even; sum 8+3+6+5+2+6=30 (÷3) → **yes**

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4. Check divisibility by 9

Rule: A number is divisible by 9 if the sum of its digits is divisible by 9.
1. 109 818 → sum 1+0+9+8+1+8=27 (÷9) → **yes**
2. 871 236 → sum 8+7+1+2+3+6=27 (÷9) → **yes**
3. 257 064 → sum 2+5+7+0+6+4=24 (not ÷9) → **no**

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5. Check divisibility by 8

Rule: A number is divisible by 8 if its last three digits form a number divisible by 8.
1. 329 408 → last three 408; 408÷8=51 → **yes**
2. 871 241 → last three 241; 241÷8=30 R1 → **no**
3. 957 896 → last three 896; 896÷8=112 → **yes**

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6. Check divisibility by 11

Rule: A number is divisible by 11 if the difference between the sum of its alternate digits is 0 or a multiple of 11.

- Write digits left → right, sum the 1º,3º,5º… and the 2º,4º,6º… separately.
  1. 61 809 → (6+8+9)=23, (1+0)=1, 23−1=22 (÷11) → **yes**
  2. 70 169 803 → (7+1+9+0)=17, (0+6+8+3)=17, 17−17=0 → **yes**
  3. 3 178 965 → (3+7+9+5)=24, (1+8+6)=15, 24−15=9 (not ÷11) → **no**

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7. If a number is divisible by 6, it is always divisible by ___.

Since 6=2×3, any multiple of 6 is also a multiple of 2 and of 3.
Answer: 2 and 3

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8. Replace “*” to make divisible by 9

Rule: Sum of digits ≡ 0 (mod 9).
1. 379_4 → 3+7+9++4 = 23+. We need 23+_ ≡ 0 (mod 9). 23≡5, so 5+*≡0 ⇒ * = 4.
→ 37944

2. *8768* → *+8+7+6+8 = 29+. 29≡2, so 2+*≡0 ⇒ * = 7.
→ 78768

Class 6 Maths Exercise 4.4

1. H.C.F. by Prime Factorisation

Rule:

1. Write each number as a product of primes.
2. Identify the primes common to *all* numbers.
3. For each common prime, take the **lowest exponent** appearing.
4. H.C.F. = product of those primes raised to those exponents.

Group	Prime Factors	Common primes & exponents	H.C.F.
(i) 32, 48, 96	$32 = 2^5$ $48 = 2^4 x 3^1$ $96 = 2^5 x 3^1$	$2^\wedge min(5,4,5)=2^4$	$2^4 = 16$
(ii) 144, 192, 216	$144 = 2^4 x 3^2$ $192 = 2^6 x 3^1$ $216 = 2^3 x 3^3$	$2^\wedge min(4,6,3)=2^3$; $3^\wedge min(2,1,3)=3^1$	$2^3 x 3^1 = 8x3 = 24$
(iii) 65, 117, 273	$65 = 5^1 x 13^1$ $117 = 3^2 x 13^1$ $273 = 3^1 x 7^1 x 13^1$	$13^\wedge min(1,1,1)=13^1$	13
(iv) 30, 60, 75	$30 = 2^1 x 3^1 x 5^1$ $60 = 2^2 x 3^1 x 5^1$ $75 = 3^1 x 5^2$	$3^\wedge min(1,1,1)=3^1$; $5^\wedge min(1,1,2)=5^1$	3x5 = 15
(v) 32, 36, 48	$32 = 2^5$ $36 = 2^2 x 3^2$ $48 = 2^4 x 3^1$	$2^\wedge min(5,2,4)=2^2$	$2^2 = 4$

2. H.C.F. by Short Division

Rule:
Divide all numbers simultaneously by a prime as long as *all* are divisible. Multiply those divisors to get the H.C.F.

Group	Division steps	H.C.F.
(i) 38, 95, 171	÷19: (2, 5, 9) → no further common prime	19
(ii) 72, 81, 99	÷3: (24, 27, 33) → ÷3: (8, 9, 11) → stop	3x3 = 9
(iii) 60, 80, 90	÷2: (30,40,45) → ÷2: (15,20,45) stops → ÷5: (3,4,9) stops	2x2x5 = 20?
But 20 does not divide 90. Correct is: ÷2→(30,40,45), ÷5→(6,8,9) stops. So H.C.F.=2·5=10.	10	
(iv) 84, 105, 168	÷3: (28,35,56) → ÷7: (4,5,8) stops	3x7 = 21
(v) 70, 112, 196	÷2: (35,56,98) → ÷7: (5,8,14) stops	2x7 = 14

3. H.C.F. by Short Division (More Groups)

Group	Steps	H.C.F.
(i) 615, 984	÷3: (205, 328) → ÷41: (5, 8) → stop	3x41 = 123
(ii) 680, 935	÷5: (136, 187) → ÷17: (8, 11) → stop	5x17 = 85
(iii) 120, 192	÷2: (60, 96) → ÷2: (30, 48) → ÷2: (15, 24) → ÷3: (5, 8) → stop	2x2x2x3 = 24
(iv) 180, 192, 336	÷2: (90,96,168) → ÷2: (45,48,84) → ÷3: (15,16,28) → stop	2x2x3 = 12
(v) 240, 432, 576, 864	÷2×4 times: (15,27,36,54) → ÷3: (5,9,12,18) → stop	2^4x3 = 16x3 = 48

4. L.C.M. by Prime Factorisation

Rule:

1. Prime-factorise each.
2. For each prime that appears *anywhere*, take the **highest exponent** among the numbers.
3. Multiply these together.

Group	Prime Factors	Highest exponents	L.C.M.
(i) 4, 8, 16	$4 = 2^2$; $8 = 2^3$; $16 = 2^4$	2^4	16
(ii) 6,12,18	$6 = 2^1x3^1$; $12 = 2^2x3^1$; $18 = 2^1x3^2$	$2^2 \cdot 3^2$	4x9 = 36
(iii) 12,16,20	$12 = 2^2x3^1$; $16 = 2^4$; $20 = 2^2x5^1$	$2^4 \cdot 3^1 \cdot 5^1$	16x3x5 = 240
(iv) 24,36	$24 = 2^3 \cdot 3^1$; $36 = 2^2 \cdot 3^2$	$2^3 \cdot 3^2$	8x9 = 72
(v) 12,15	$12 = 2^2 \cdot 3^1$; $15 = 3^1 \cdot 5^1$	$2^2 \cdot 3^1 \cdot 5^1$	4x3x5 = 60
(vi) 3,4,5	$3 = 3^1$; $4 = 2^2$; $5 = 5^1$	$2^2 \cdot 3^1 \cdot 5^1$	4x3x5 = 60

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5. Find L.C.M. (Direct)

1. **21, 24**
   - 21 = 3x7; 24 = 2^3x3 → L.C.M. = 2^3x3x7 = 8x21 = 168
2. **16, 32**
   - 16 = 2^4; 32 = 2^5 → L.C.M. = 2^5 = 32
3. **55, 88, 110**
   - 55 = 5x11; 88 = 2^3x11; 110 = 2x5x11 → L.C.M. = 2^3x5x11 = 8x55 = 440
4. **68, 102, 119**
   - 68 = 2^2x17; 102 = 2x3x17; 119 = 7x17 → L.C.M. = 2^2x3x7x17 = 4x3x7x17 = 12x119 = 1 428
5. **192, 188, 576**
   - 192 = 2^6x3; 188 = 2^2x47; 576 = 2^6x3^2 → L.C.M. = 2^6x3^2x47 = 64x9x47 = 576x47 = 27 072

Exercise 4.5

1. The product of two numbers is 2286. If their HCF is 9, find their LCM.

We know:

Product of two numbers = HCF × LCM

So,

LCM = 2286 ÷ 9 = **254**

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2. The product of two numbers is 4120. If their LCM is 824, find their HCF.

HCF = 4120 ÷ 824 = **5**

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3. HCF of 186 and 496 is 62. What is their LCM?

Product = 186 × 496 = 92256
LCM = 92256 ÷ 62 = **1488**

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4. HCF and LCM of two numbers are 25 and 5525. One number = 325. Find the other.

Product of numbers = HCF × LCM = 25 × 5525 = 138125
Other number = 138125 ÷ 325 = **425**

PROBLEM SOLVING

5. Find the greatest number that will exactly divide 1065 and 1491.

Find HCF of 1065 and 1491 using Euclidean method:
1491 - 1065 = 426
1065 - 426 = 639
639 - 426 = 213
426 - 213 = 213
213 ÷ 213 = 1 → HCF = **213**

---

6. Find the least number which after being increased by 2 is exactly divisible by 8, 16, and 24.

LCM of 8, 16, and 24 = **48**
Required number = 48 − 2 = **46**

CRITICAL THINKING

7. Find the greatest number that can divide 166 and 237 leaving remainders 5 and 7 respectively.

Let the required number be **x**.
So,
x divides (166 − 5) = 161 and (237 − 7) = 230
Find HCF of 161 and 230:

- 230 − 161 = 69
- 161 − 69 = 92
- 92 − 69 = 23
- 69 − 46 = 23 → HCF = **23**

---

8. Find the least number which, when increased by 3, is divisible by 36, 40 and 64.

LCM of 36, 40, 64 =

- $36 = 2^2 \times 3^2$
- $40 = 2^3 \times 5$
- $64 = 2^6$
- LCM = $2^6 \times 3^2 \times 5$ = **5760**
  Required number = 5760 − 3 = **5757**

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9. Find the greatest 4-digit number which is exactly divisible by 55, 88, and 110.

LCM of 55, 88, and 110:

- Prime factors:
  - $55 = 5 \times 11$
  - $88 = 2^3 \times 11$
  - $110 = 2 \times 5 \times 11$
- LCM = $2^3 \times 5 \times 11$ = **440**
  Now, greatest 4-digit number = 9999
  9999 ÷ 440 = 22.72 → Closest lower whole number = 22
  22 × 440 = **9680**

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10. Find the minimum length of a rope which can be cut into whole number of pieces of lengths 36 cm, 48 cm and 60 cm.

This is asking for **LCM of 36, 48, 60**

- $36 = 2^2 \times 3^2$
- $48 = 2^4 \times 3$
- $60 = 2^2 \times 3 \times 5$
- LCM = $2^4 \times 3^2 \times 5$ = **720 cm**

MISCELLANEOUS EXERCISE:

1. (a) Divisibility by 4

Rule: A number is divisible by 4 if its **last two digits** form a number divisible by 4.

- (iii) 39996 → last two digits = **96** → 96 ÷ 4 = 24 → **Yes**
- (ii) 794123 → last two digits = **23** → 23 ÷ 4 ≠ whole number → **No**

(b) Divisibility by 6

Rule: A number divisible by both **2 and 3** is divisible by 6.

- (iii) 399996 → ends in 6 (even), and digit sum = 3+9+9+9+9+6 = 45 → divisible by 3 → **Yes**
- (i) 755376 → ends in 6 (even), digit sum = 33 → divisible by 3 → **Yes**
- (ii) 537516 → ends in 6 (even), digit sum = 27 → divisible by 3 → **Yes**

(c) Divisibility by 8

Rule: Last **3 digits** must form a number divisible by 8.

- (iii) 1165056 → last 3 = **056** = 56 ÷ 8 = 7 → **Yes**
- (i) 4660222 → last 3 = **222** ÷ 8 = 27.75 → **No**
- (ii) 9320448 → last 3 = **448** ÷ 8 = 56 → **Yes**
- (iv) 771348 → last 3 = **348** ÷ 8 = 43.5 → **No**
- (v) 740702 → last 3 = **702** ÷ 8 = 87.75 → **No**

(d) Divisibility by 9

Rule: If **sum of digits** is divisible by 9, the number is divisible by 9.

- (i) 12345678 → sum = 36 → **Yes**
- (ii) 9876543 → sum = 42 → **No**
- (iii) 273645 → sum = 27 → **Yes**
- (iv) 19283742 → sum = 36 → **Yes**

(e) Divisibility by 11

Rule: Alternate digit sum difference is divisible by 11.

- (i) 1358016 → (1+5+0+1)=7; (3+8+0)=11 → |11 - 7| = 4 → **No**
- (ii) 6108531 → (6+0+5+1)=12; (1+8+3)=12 → |12 - 12| = 0 → **Yes**
- (iii) 555321 → (5+5+2)=12; (5+3+1)=9 → |12 - 9| = 3 → **No**
- (iv) 1086415 → (1+8+4+5)=18; (0+6+1)=7 → |18 - 7| = 11 → **Yes**

(f) Which are prime numbers?

Prime numbers are only divisible by 1 and itself.

- 139 → Prime
- 193 → Prime
- 373 → Prime
- 163 → Prime
- 187 = 11 × 17 → **Not Prime**
- 327 = 3 × 109 → **Not Prime**

Primes: 139, 193, 373, 163

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2. HCF using Prime Factorisation

(i) 14, 28, 105

- 14 = 2 × 7
- 28 = 2^2 × 7
- 105 = 3 × 5 × 7
  Common = 7 → HCF = 7

(ii) 375, 825

- 375 = 3 × 5^3
- 825 = 3 × 5^2 × 11
  Common = 3 × 5^2 = 75

(iii) 375, 250

- 375 = 3 × 5^3
- 250 = 2 × 5^3

  Common = 5^3 = 125

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3. HCF using Short Division

(Please upload numbers you want solved here.)

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4. HCF using Long Division Method

(i) 490, 735

735 ÷ 490 = 1, remainder 245
490 ÷ 245 = 2, remainder 0 → **HCF = 245**

(ii) 360, 456

456 ÷ 360 = 1, rem 96
360 ÷ 96 = 3 rem 72
96 ÷ 72 = 1 rem 24
72 ÷ 24 = 3 rem 0 → **HCF = 24**

(iii) 168, 420

420 ÷ 168 = 2 rem 84
168 ÷ 84 = 2 rem 0 → **HCF = 84**

(iv) 18, 27, 45, 99

HCF(18,27) = 9
HCF(9,45) = 9
HCF(9,99) = 9 → **HCF = 9**

(v) 66, 102, 138

HCF(66,102) = 6
HCF(6,138) = 6 → **HCF = 6**

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5. LCM

(i) 40, 60, 72, 96

LCM = $2^5 \times 3^2 \times 5$ = **1440**

(ii) 108, 135, 162

LCM = $2^2 \times 3^3 \times 5 \times 3$ = **540**

(iii) 60, 75, 80, 50

LCM = $2^4 \times 3 \times 5^2$ = **1200**

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6. HCF and LCM

(i) 54, 90

- HCF = 18
- LCM = (54×90)/18 = **270**

(iv) 21, 28, 105, 36

Prime factorizations:

- 21 = 3×7
- 28 = 2^2×7
- 105 = 3×5×7
- 36 = $2^2 \times 3^2$
  Common = None → **HCF = 1**

LCM = $2^2 \times 3^2 \times 5 \times 7$ = **1260**

EXPERIENTIAL LEARNING

(ii) 168, 392

- 168 = $2^3 \times 3 \times 7$
- 392 = $2^3 \times 7^2$
  HCF = $2^3 \times 7$ = 56
  LCM = $2^3 \times 3 \times 7^2$ = 1176

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7. HCF = 9, LCM = 54, one number = 27. Find the other.

Product = HCF × LCM = 9 × 54 = 486
Other number = 486 ÷ 27 = **18**

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8. Product = 8064, HCF = 12. Find LCM.

LCM = 8064 ÷ 12 = **672**

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9. Find smallest number divisible by 42, 56, 105

LCM(42, 56, 105) =
42 = 2 × 3 × 7
56 = 2^3 × 7
105 = 3 × 5 × 7
LCM = 2^3 × 3 × 5 × 7 = **840**

---

10. Least number which leaves remainder 7 when divided by 15, 21, 35, 42

Let number = x
Then (x − 7) divisible by 15, 21, 35, 42
LCM = 2 × 3 × 5 × 7 = **210**
So, number = 210 + 7 = **217**

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11. Greatest 4-digit number divisible by 8, 12, 15, 20

LCM = 2^3 × 3 × 5 = 120
Largest 4-digit number = 9999
9999 ÷ 120 = 83.325 → 83 × 120 = **9960**

Chapter test 4

1. First five multiples of 6:
6, 12, 18, 24, 30

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2. H.C.F. of 9, 15, 18 and 20 using **prime factorisation**:

- $9 = 3 \times 3$
- $15 = 3 \times 5$
- $18 = 2 \times 3 \times 3$
- $20 = 2 \times 2 \times 5$

Common prime factor = none (except 1)
So, **H.C.F. = 1**

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3. H.C.F. of 168 and 392 using **long division**:

- $392 \div 168 = 2$ (remainder 56)
- $168 \div 56 = 3$ (remainder 0)

So, **H.C.F. = 56**

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4. L.C.M. of 48, 60, 72 and 96:

Prime factorizations:

- $48 = 2^4 \times 3$
- $60 = 2^2 \times 3 \times 5$
- $72 = 2^3 \times 3^2$
- $96 = 2^5 \times 3$

Take highest powers:
L.C.M. = $2^5 \times 3^2 \times 5 = 720$

---

5. Smallest number divisible by 32, 36 and 48 = **L.C.M.**

Prime factorizations:

- $32 = 2^5$
- $36 = 2^2 \times 3^2$
- $48 = 2^4 \times 3$

L.C.M. = $2^5 \times 3^2 = 288$

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6. H.C.F. = 9, L.C.M. = 270, one number = 54
Use:
HCF × LCM = Product of two numbers

$9 \times 270 = 2430$
$2430 \div 54 =$ **45**

Other number = 45

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7. Least number which when increased by 7 is divisible by 12, 15, and 18
Find L.C.M. of 12, 15, 18 =
$12 = 2^2 \times 3$, $15 = 3 \times 5$, $18 = 2 \times 3^2$
L.C.M. = $\mathbf{2^2 \times 3^2 \times 5 = 180}$

Answer: **180 - 7 = 173**

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8. Find largest number that divides
398 - 7 = 391,
436 - 11 = 425,
542 - 15 = 527

Now find H.C.F. of 391, 425, and 527:

- H.C.F.(391, 425) = 17
- H.C.F.(17, 527) = 17

Answer: 17

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9. Courtyard:
Length = 20 m 16 cm = **2016 cm**
Breadth = 15 m 60 cm = **1560 cm**

Find H.C.F. of 2016 and 1560:
H.C.F. = 24 cm (side of square stone)

Number of stones = $(2016 \times 1560) \div (24 \times 24)$ =
= $3141600 \div 576$ = **5450**

Answer: 5450 stones

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10. H.C.F. of any two consecutive numbers is **1**.