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GRADE 8 · WHOLE NUMBERS

# HCF and LCM (Highest Common Factor & Lowest Common Multiple)

## EXAM-STYLE CLASS TEST

| MARKS | DURATION | QUESTIONS |
|---|---|---|
| 33 | 50 minutes | 3 |

Name: _____ Class: _____

Date: _____

MARK ____ / 33

### INSTRUCTIONS AND INFORMATION

1. Answer **ALL** the questions in this question paper.
2. Answer QUESTION 1 by **circling** the letter (A–D) in the answer grid at the end of that section.
3. Show **ALL** calculations clearly.
4. Show all units where applicable.
5. Number the answers correctly according to the numbering system used in this question paper.
6. A non-programmable calculator may be used, unless stated otherwise.
7. Write neatly and legibly.

## QUESTION 1 [10 MARKS]

Four options are given as possible answers to the following questions. Choose the correct answer and circle the letter (A–D) in the grid at the end of this section. If you want to change your choice, put a cross through the wrong letter and circle your new choice.

**1.1** The HCF of 24 and 36 is ... (1)

**A)** 4 **B)** 72
**C)** 12 **D)** 6

**1.2** The LCM of 4 and 10 is ... (1)

**A)** 14 **B)** 2
**C)** 20 **D)** 40

**1.3** Two ropes are 18 m and 24 m long. They must be cut into equal pieces, as LONG as possible, with nothing left over. Each piece is ... (1)

**A)** 72 m **B)** 42 m
**C)** 3 m **D)** 6 m

**1.4** Two taxis leave a rank together. One returns every 15 minutes and the other every 20 minutes. They next leave together after ... (1)

**A)** 300 minutes **B)** 60 minutes
**C)** 35 minutes **D)** 5 minutes

**1.5** For any two whole numbers, HCF × LCM equals ... (1)

**A)** their product **B)** the larger number
**C)** their sum **D)** their difference

**1.6** Which one of the following is TRUE of the HCF of two numbers? (1)

**A)** It is never smaller than either number
**B)** It divides into both numbers
**C)** Both numbers divide into it
**D)** It is always a prime number

**1.7** The HCF of two numbers is 1. The numbers are called ... (1)

**A)** prime
**B)** relatively prime (co-prime)
**C)** square
**D)** consecutive

**1.8** The LCM of 6, 8 and 12 is ... (1)

**A)** 2
**B)** 576
**C)** 48
**D)** 24

**1.9** 12 tins and 18 boxes must be packed into identical groups with none left over. The greatest number of groups is ... (1)

**A)** 30
**B)** 36
**C)** 3
**D)** 6

**1.10** Which one of the following pairs has an LCM of 36? (1)

**A)** 9 and 12
**B)** 6 and 12
**C)** 8 and 9
**D)** 4 and 6

**ANSWER GRID — CIRCLE YOUR ANSWERS FOR QUESTION 1**

| | | | | |
|---|---|---|---|---|
| **1.1** | A | B | C | D |
| **1.2** | A | B | C | D |
| **1.3** | A | B | C | D |
| **1.4** | A | B | C | D |
| **1.5** | A | B | C | D |
| **1.6** | A | B | C | D |
| **1.7** | A | B | C | D |
| **1.8** | A | B | C | D |
| **1.9** | A | B | C | D |
| **1.10** | A | B | C | D |

## QUESTION 2 [12 MARKS]

Answer the questions below WITHOUT using a calculator. Show ALL your calculations.

**2.1** Use prime factorisation to determine the HCF and the LCM of $48$ and $36$. **(5)**

**2.2** Determine the HCF and the LCM of $92$ and $146$. **(5)**

**2.3** Show that HCF $\times$ LCM $= 48 \times 36$. **(2)**

## QUESTION 3 [11 MARKS]

Answer the two word problems below. In each case state whether you used the HCF or the LCM.

**3.1** Two bells ring at regular intervals, one every $15$ minutes and the other every $20$ minutes. They ring together at $08{:}00$. Determine the next TWO times at which they ring together. **(5)**

**3.2** $60$ red beads and $48$ blue beads are packed into identical packs, using as many packs as possible with none left over. Determine the number of packs and what each pack contains. **(4)**

**3.3** Explain how you decide whether a word problem needs the HCF or the LCM. **(2)**

**TOTAL: 33 marks**

*This question paper consists of 3 questions.*

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