WORKSHEET 3 NUMBER THEORY – CHAPTER 8

WHAT DID ONE RAIN DROP SAY TO THE OTHER?

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1 (a) What is the next odd number after 19?
(b)What is the next even number after 58?
(c) What is the next odd number after 22?
(d) What is the next even number after 41?

2 (a) What is the odd number before 101?
(b) What is the even number before 13?
(c)List all the odd numbers between 20 and 28.
(d)List all the even numbers between 80 and 87.

3 Write in index form.
(a) $6 \times 6 \times 6$ (b) $10 \times 10 \times 10 \times 10$ (c) $2 \times 2 \times 3 \times 3 \times 3$

4 Write the basic numeral for:
(a) 3×10^2 (b) 7×10^4 (c) 6×10^3

5 Complete to make a true sentence.
(a) $4 \times (200 + 3) = \Delta \times 200 + \Delta \times 3$
(b) $8 \times (500 - 2) = \Delta \times 500 - \Delta \times 2$
(c) $6 \times 802 = 6 \times 800 + 6 \times \Delta$
(d) $9 \times 297 = 9 \times 300 - 9 \times \Delta$

6 Use **factor trees** to find the product of prime factors in index form of the following.
(a) 28 (b) 144
(c) 576 (d) 1225

7 Find the following square roots and cube roots **without** using a calculator. (Hint: find its prime factors first)

(a) $\sqrt{625}$ (b) $\sqrt{484}$
(c) $\sqrt[3]{343}$ (d) $\sqrt[3]{2744}$

8 Use the **repeated division method** to find the product of prime factors in index form of the following.
(a) 36 (b) 325

9 Find the even numbers (or the numbers divisible by 2) of the following.
111, 346, 340, 119

10 Using the "sum of the digits" test, find the numbers that are divisible by 3.
636, 117, 575, 315,

11 Which of these numbers are divisible by 4?
336, 914, 834, 116

12 Which of the numbers in Question 10 is divisible by 6?

13 Which of the following are multiples of 5?
400, 1735, 408, 555

14 Which of the following are divisible by 7?
469, 175, 581, 789

15 Which of the following are divisible by 8?
24808, 3064, 89356, 10032

16 Which of these numbers are multiples of 25?
4800, 12345, 650, 975

17

Number	**Prime Factors**	**Index Form**
72	$2\times2\times2\times3\times3$	$2^3\times3^2$
432	$2\times2\times2\times2\times3\times3\times3$	$2^4\times3^3$
60	$2\times2\times3\times5$	$2^2\times3\times5$
105	$3\times5\times7$	$3\times5\times7$
1225	$5\times5\times7\times7$	$5^2\times7^2$

Using the above table of prime factors, find the HCF of:
(a) 72 and 432 (b) 72 and 60 (c) 1225 and 60

18 Using the table in Question 17, find the LCM of:
(a) 72 and 60 (b) 72 and 432 (c) 60 and 105

Answers:

A	A	C	D	E	H	L	M
400 1735 555	72 12 5	2522714	$6^3, 10^4$ $2^2\times3^4$	469 175 581	346 340	$2^2\times7$ $2^4\times3^2$ $6^2\times2^4$ $7^2\times5^2$	21, 60 23, 42

N	O	O	P	R	S	T	U
336 116	4, 8 2, 3	360 432 420	24808 3064 10032	4800 650 975	$2^2\times3^2$ $5^2\times13$	300 70000 6000	99 12 21,23, 25, 27 82, 84, 86

W	Y
636, 117	636

4 10 18 8 7 5 1 15 17 11 12 4 9 16 14 14 8

13 7 6 5 2 3