

Arsi University Special non boarding secondary school

Mathematics Worksheet I for grade nine.

I. Attempt all questions.

1. Which of the following numbers are prime, composite, or neither? Give reason.

a) 13 B) 27 C. 89 D) 91 E) 153

2. Find the GCF and LCM of the following numbers.

a) 60, 200, and 420 B) 48, 60, and 72

3. Write the following decimal numbers in the fraction form?

a) 2.34 b) 0.132

4. The product of two numbers is 96. If their GCF is 4 then,

a) What is their LCM?

b) Find the two numbers?

5. In a class of 31 students, 22 students study physics, 20 students study chemistry and 5 students study neither. Calculate the number of students who study both subjects.

6. Let $U = \{0, 1, 2, \dots, 9\}$, $A = \{1, 2, \dots, 5\}$, $B = \{0, 2, 1, 6, 8\}$ and $C = \{3, 6, 9\}$. Then find

i) A' ii) B/A iii) $C \times (A \cap B)$

7. Find all subsets of the following sets.

i) $\{3, 4, 5\}$ ii) $\{a, b\}$

8. Suppose the universal set U be the set of one-digit numbers, and set $A = \{x: x \text{ is an even natural number less than or equal to } 9\}$. Then find each of the following

i) A' ii) $A \cap A'$ iii) $A \cup A'$ iv) $\emptyset'$

9. Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, $A = \{1, 3, 5, 7\}$, $B = \{1, 2, 3, 4\}$. Evaluate

i) $U - (A \Delta B)$

10. 180 can be written as $2^a \cdot 3^b \cdot 5^c$. Then find the value of a , b , and c .

11. Find the GCF (16, 24) . LCM (16, 24).

12. Write each of the following decimals as a simplest fraction form

i) 2.14

ii) 0.425

13. Write the numbers 0.2 and 3.31 as a fraction form.

Match each set in column A with its equivalent set in column B

A

B

14. { x, {y}, y }

A) { a, b, c, d, e, f }

15. { x : $x \in \mathbb{Z}$ and $-4 < x < 4$ }

B) { 4, 5 }

16. { 1, 2, 3, 4, 5, 6 }

C) { 1, 2, 3, 4, 5, 6, 8 }

17. { x : $x \in \mathbb{N}$ and $x < 6$ }

D) { a, b, c }

18. { a, b }

E) { a, e, i, o, u }

F) { a, b, c, d }

19. which of the following sets are equal to $B = \{5, 6, 7\}$ and which are not equal

i. { 5, 7, 6 }

iii. { x : $x \in \mathbb{N}$ and $5 \leq x \leq 7$ }

ii. { 5, { 7 }, 6 }

iv. { 5, 6, 7 }

Simplify each of the following

20) $\sqrt{72} + \sqrt{18}$

21) $5\sqrt{8} - 6\sqrt{32} + \sqrt{2}$

Calculate each of the following.

22. $(\sqrt{3} + \sqrt{2})^2$

23. $(\sqrt{5} - \sqrt{3})^2$

24. $(2 + \sqrt{3})(2 - \sqrt{3})$

25. $\sqrt{3} + \sqrt{12}$

26. A rope of $5\frac{1}{3}$ meters is to be cut into 4 pieces of equal length. What will be the length of each piece?

