ALBERTA MATH 20-2 · UNIT 1 · 10 QUESTIONS

Inductive and Deductive Reasoning — Practice Test

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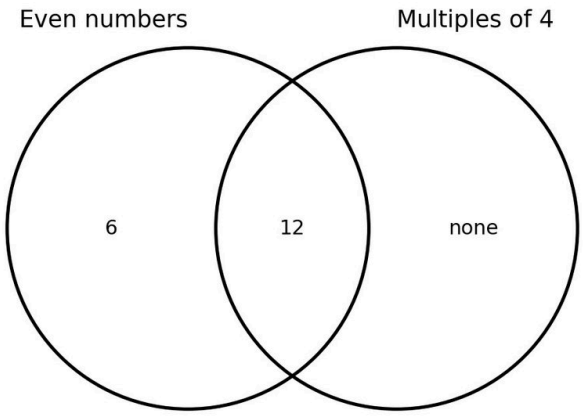
1 **The terms of a pattern are 3, 8, 13, 18, … The 25th term is**

- A 123
- B 120
- C 125
- D 128

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2

The Venn diagram shows even numbers and multiples of 4. Which statement about the numbers shown is true?



Question 2

The Venn diagram shows even numbers and multiples of 4. Which statement about the numbers shown is true?

A) 6 is a multiple of 4

B) 12 is even but is not a multiple of 4

C) 6 is even but is not a multiple of 4

D) Every even number shown is a multiple of 4

A 6 is a multiple of 4

B 12 is even but is not a multiple of 4

C 6 is even but is not a multiple of 4

D Every even number shown is a multiple of 4

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3 **Every multiple of 10 ends in the digit 0. The number 450 is a multiple of 10. Which conclusion follows by deductive reasoning?**

A Every number ends in the digit 0.

B Every number that ends in 0 is a multiple of 450.

C 450 ends in the digit 0.

D 450 ends in the digit 5.

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4 **The terms of a pattern are 4, 10, 16, 22, … The 40th term is _____ Record your answer as a whole number.**

ANSWER _____

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5 **The number 1 is a counterexample to which conjecture?**

A All odd numbers are prime.

B All even numbers are composite.

C All prime numbers are odd.

D All multiples of 3 are odd.

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6 **Three friends, Liam, Mai and Zoe, each own a different pet: a cat, a dog and a bird. Mai does not own the cat. Zoe owns the dog. The pet owned by Liam is**

A the dog

B the bird

C cannot be determined

D the cat

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7 **When a pizza is cut with straight cuts across the whole pizza, the maximum numbers of pieces from 1, 2, 3 and 4 cuts are 2, 4, 7 and 11. Following the same pattern, the maximum number of pieces from 6 cuts is _____ Record your answer as a whole number.**

ANSWER _____

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8 **Which of the following completes a valid deductive proof that the product of two even integers is always even?**

A. Since 4 × 6 = 24 and 2 × 8 = 16 are even, the product of two even integers is always even.

B. The sum of two even integers is even, so their product must be even as well.

C. Even integers end in 0, 2, 4, 6 or 8, so multiplying them gives an even result.

D. Let the integers be 2m and 2n. Their product is 4mn = 2(2mn), which is a multiple of 2, so the product is even.

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9 **The cube numbers are 1, 8, 27, 64, 125, …, where each term is the cube of its position. The 9th cube number is _____ Record your answer as a whole number.**

ANSWER _____

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10 **Which of the following conjectures is true?**

A. The sum of two prime numbers is always even.

B. The product of three consecutive integers is always divisible by 3.

C. Every number of the form $2^n - 1$ is prime.

D. Every number ending in the digit 3 is prime.

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ANSWER KEY

1.	A	**5.**	A	**9.**	729
2.	C	**6.**	D	**10.**	B
3.	C	**7.**	22		
4.	238	**8.**	D		

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