

Brett Robbins Academic Consulting

Math 30-1 Practice Test

Permutations, Combinations & Binomial Theorem

10 Questions

Original practice questions written to the Alberta curriculum, in the style of past diploma examinations. Work through each question, then check your answers with the key at the end.

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, contact Brett for clarification.

Question 1

A multiple – choice quiz has 5 questions, and each question has 4 possible answers.

The number of different sets of answers that can be given is

- | | |
|---------|---------|
| A) 20 | B) 625 |
| C) 1024 | D) 3125 |

Question 2

Eight runners finish a race with no ties.

The number of ways the first, second, and third place medals can be awarded is

- | | |
|--------|--------|
| A) 512 | B) 56 |
| C) 24 | D) 336 |

Question 3

A student must choose 4 courses from 12 elective courses.

The number of different selections the student can make is

- | | |
|----------|--------|
| A) 11880 | B) 495 |
| C) 48 | D) 144 |

Question 4

The coefficient of the x^3 term in the expansion of $(x + 2)^5$ is

- | | |
|-------|-------|
| A) 10 | B) 20 |
| C) 40 | D) 80 |

Question 5

The number of different arrangements of all the letters in the word BANANA is

Question 6

A security code consists of 4 digits, and digits may be repeated.

If the code cannot begin with 0, the number of different codes is

- | | |
|---------|----------|
| A) 9000 | B) 10000 |
| C) 6561 | D) 5040 |

Question 7

The number of different arrangements of all the letters in the word STATISTICS is

- | | |
|------------|-----------|
| A) 3628800 | B) 604800 |
| C) 50400 | D) 100800 |

Question 8

A committee of 5 people is to be selected from 9 women and 7 men.

The number of committees that have at least 3 women is

- | | |
|---------|---------|
| A) 2772 | B) 1764 |
| C) 4368 | D) 1596 |

Question 9

Five friends are seated in a row for a photograph. Aisha and Ben must sit next to each other.

The number of different seating arrangements is

- | | |
|--------|-------|
| A) 120 | B) 48 |
| C) 24 | D) 72 |

Question 10

In the expansion of $(2x - 3)^6$, the coefficient of the x^2 term is

Answer Key

- | | | |
|------|-------|----------|
| 1. C | 5. 60 | 9. B |
| 2. D | 6. A | 10. 4860 |
| 3. B | 7. C | |
| 4. C | 8. A | |

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