PRINCE EDWARD ISLAND PRE-CALCULUS 12 · UNIT E · 25 QUESTIONS

Combinatorics — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **The number of ways to choose 2 marbles from 6 different marbles is**



ANSWER _____

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2 **The number of ways to arrange 3 runners in first, second and third style finishing positions chosen from 8 runners is**

ANSWER _____

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3 **The number of ways to arrange 3 runners in finishing order chosen from 9 runners is**

ANSWER _____

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4 **The number of ways to choose a committee of 3 from 10 people, where order does not matter, is**

ANSWER _____

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5 **A password with 3 distinct letters chosen in order from 26 letters uses**



- **A** binomial coefficients only
- **B** factorials of 3 only
- **C** permutations
- **D** combinations

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6 **Binomial coefficients are symmetric because n choose r equals**

A n choose n - r

B n choose r + 1

C r choose n

D n factorial over r

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7 **Choosing r objects from n without regard to order uses**

A sequences

B combinations

C permutations

D arrangements

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8 **Counting with repetition allowed usually uses**

A factorials only

B combinations only

C subtraction

D powers

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9 **In Pascal triangle, each interior entry is**

A twice the entry above it

B the entry to its left only

C the sum of the two entries above it

D the product of the two entries above it

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10 **The binomial theorem expands a power of**

- **A** a trinomial only
- **B** a single term
- **C** a fraction only
- **D** a binomial

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11 **The coefficient of x in the expansion of $(x + 2)^3$ is**

ANSWER _____

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12 The coefficient of x^2 in the expansion of x plus 1^4 is

A 4

B 1

C 12

D 6

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13 The number of 2 digit codes with repetition allowed from 10 digits is

ANSWER _____

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14 The number of 3 letter codes with repetition allowed from 26 letters is

ANSWER _____

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15 **The number of paths in a tree diagram is found by**

A multiplying choices at each stage

B adding all choices

C counting only the last stage

D subtracting repeated paths

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16 **The number of permutations of 5 distinct flags in a row is**



ANSWER

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17 **The number of permutations of 4 distinct songs in a playlist is**

ANSWER

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18 The number of permutations of n distinct objects is

- **A** $n!$
- **B** n^2
- **C** 2^n
- **D** n choose 2

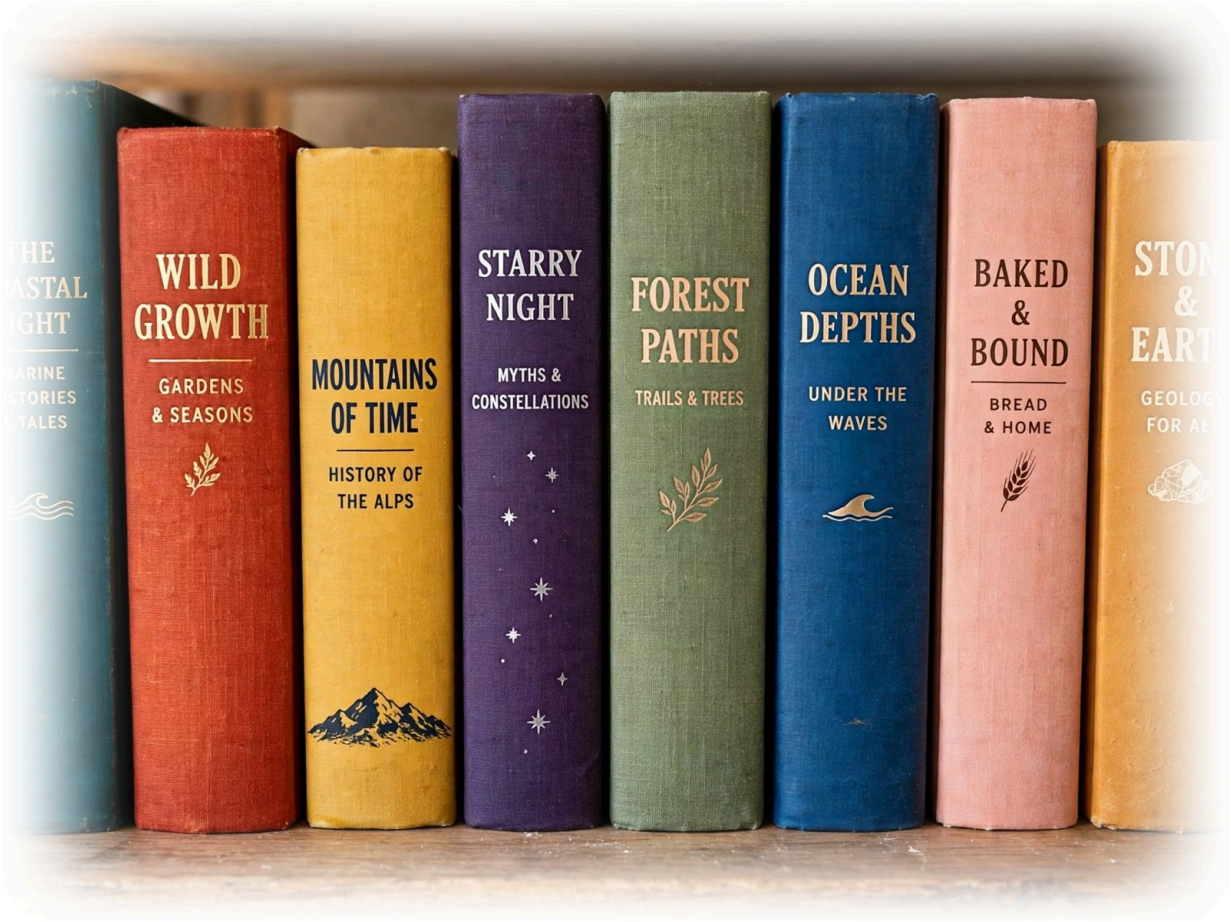
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19 The number of subsets of a 5 element set is

ANSWER _____

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20 There are 7 books on a shelf. The number of ways to choose 3 of them is



ANSWER

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21 The number of ways to arrange 2 runners in first, second and third style finishing positions chosen from 10 runners is

ANSWER

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22 **The number of ways to arrange 2 runners in finishing order chosen from 6 runners is**

ANSWER _____

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23 **The number of ways to choose a committee of 2 from 8 people, where order does not matter, is**

ANSWER _____

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24 **The binomial coefficient 9 choose 3 is**

ANSWER _____

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25 **The number of ways to arrange 4 runners in first, second and third style finishing positions chosen from 7 runners is**



ANSWER

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ANSWER KEY

1.	15	**10.**	D	**19.**	32
2.	336	**11.**	12	**20.**	35
3.	504	**12.**	D	**21.**	90
4.	120	**13.**	100	**22.**	30
5.	C	**14.**	17576	**23.**	28
6.	A	**15.**	A	**24.**	84
7.	B	**16.**	120	**25.**	840
8.	D	**17.**	24		
9.	C	**18.**	A		

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