

Watch. Practice. Understand. | Lesson 130

Chapter 10 Probabilities Review Combination and Pascal Triangle with Binomial Expansion

Watch the matching video: <https://www.youtube.com/watch?v=kFZilirZrTo>

Practice focus: Pascal's triangle and binomial expansion

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Expand $(x + 2)^3$.

02 Find the coefficient of x^2 in $(1 + x)^6$.

03 Find the x^3 term in $(2x - 1)^5$.

04 For 5 independent trials with success probability $1/2$, find $P(\text{exactly 2 successes})$.

Watch. Practice. Understand. | Lesson 130

Chapter 10 Probabilities Review Combination and Pascal Triangle with Binomial Expansion

Watch the matching video: <https://www.youtube.com/watch?v=kFZilrZrTo>

Practice focus: Counting, permutations and combinations

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

05 How many 3-letter codes use distinct letters from A, B, C, D, E?

06 How many committees of 3 can be selected from 8 people?

07 A meal has 3 main-course choices, 4 sides and 2 drinks. Count combinations.

08 How many distinct arrangements of the letters LEVEL exist?

Worked answers | Lesson 130

Chapter 10 Probabilities Review Combination and Pascal Triangle with Binomial Expansion

Watch the matching video: <https://www.youtube.com/watch?v=kFZilrZrTo>

Practice focus: Pascal's triangle and binomial expansion

Original extra practice matched to the listed lesson topic.

01 Expand $(x + 2)^3$.

Coefficients 1, 3, 3, 1 give $x^3 + 6x^2 + 12x + 8$.

02 Find the coefficient of x^2 in $(1 + x)^6$.

The coefficient is $C(6, 2) = 15$.

03 Find the x^3 term in $(2x - 1)^5$.

Choose three $2x$ factors and two -1 factors: $C(5, 3)8x^3 = 80x^3$.

04 For 5 independent trials with success probability $1/2$, find $P(\text{exactly 2 successes})$.

$C(5, 2)(1/2)^2(1/2)^3 = 10/32 = 5/16$.

Worked answers | Lesson 130

Chapter 10 Probabilities Review Combination and Pascal Triangle with Binomial Expansion

Watch the matching video: <https://www.youtube.com/watch?v=kFZilirZrTo>

Practice focus: Counting, permutations and combinations

Original extra practice matched to the listed lesson topic.

05 How many 3-letter codes use distinct letters from A, B, C, D, E?

Order matters: $5 \times 4 \times 3 = 60$.

06 How many committees of 3 can be selected from 8 people?

Order does not matter: $C(8, 3) = 8!/(3!5!) = 56$.

07 A meal has 3 main-course choices, 4 sides and 2 drinks. Count combinations.

Multiplication principle: $3 \times 4 \times 2 = 24$ meals.

08 How many distinct arrangements of the letters LEVEL exist?

Five letters with two L's and two E's: $5!/(2!2!) = 30$.