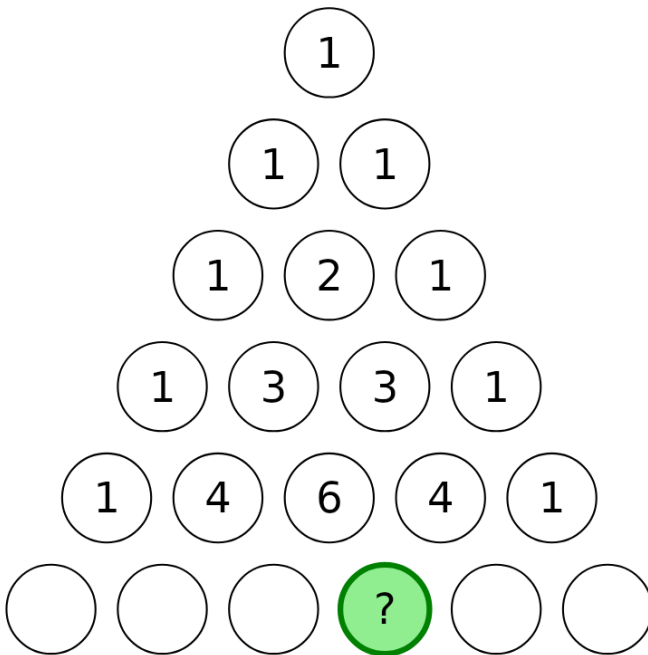




Probability and Statistics - Combinations and Permutations on Pascal's Triangle - ...

- 1 Each entry in Pascal's triangle is the sum of the two entries directly above it. Find the value of the highlighted entry in the next row.



A

6

B

11

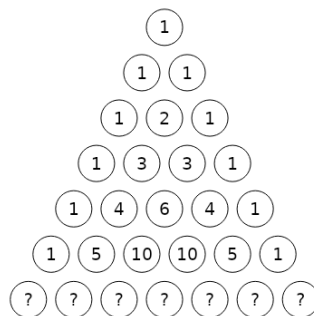
C

4

D

10

- 2 Each entry in Pascal's triangle is the sum of the two entries directly above it. Find the complete next row.



A

6	1	15	20	15	6	1
---	---	----	----	----	---	---

B

1	7	21	35	35	21	7	1
---	---	----	----	----	----	---	---

C

1	5	10	10	5	1
---	---	----	----	---	---

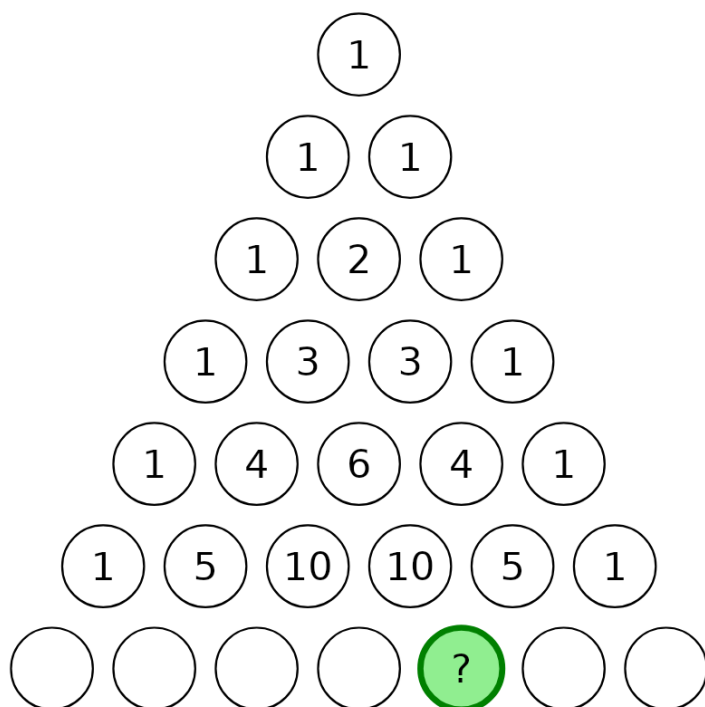
D

1	6	15	20	15	6	1
---	---	----	----	----	---	---



Probability and Statistics - Combinations and Permutations on Pascal's Triangle - ...

3 Find the value of the highlighted entry in the next row of Pascal's triangle.



A

5

B

10

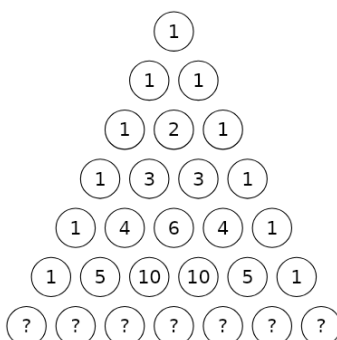
C

15

D

16

4 Find the complete next row of Pascal's triangle.



A

1	7	21	35	35	21	7	1
---	---	----	----	----	----	---	---

B

1	6	15	20	15	6	1
---	---	----	----	----	---	---

C

1	5	10	10	5	1
---	---	----	----	---	---

D

6	1	15	20	15	6	1
---	---	----	----	----	---	---



Probability and Statistics - Combinations and Permutations on Pascal's Triangle - ...

- 5 In Pascal's triangle (counting from 0), which row contains this entry?

$$\{4\choose 1\}$$

$$\binom{4}{1}$$

A Row 5

B Row 1

C Row 4

D Row 3

- 6 In Pascal's triangle (counting from 0), which column contains this entry?

$$\{5\choose 4\}$$

$$\binom{5}{4}$$

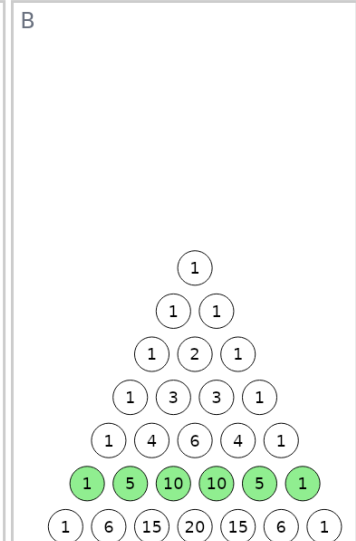
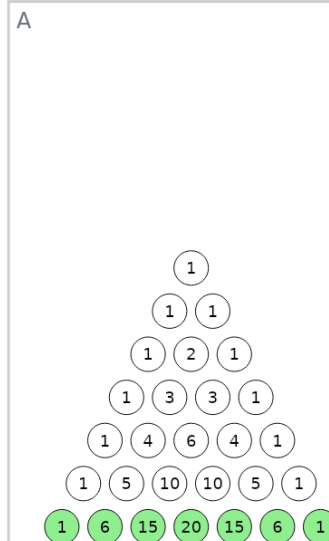
A Column 3

B Column 4

C Column 5

- 7 Select the Pascal's triangle with the row for this entry highlighted (counting from 0). $\{5\choose 2\}$

$$\binom{5}{2}$$



- 8 In Pascal's triangle (counting from 0), which row contains this entry?

$$\{5\}\text{C}\{4\}$$

$5C_4$

A Row 5

B Row 6

C Row 4

- 9 In Pascal's triangle (counting from 0), which column contains this entry?

$$\{5\}\text{C}\{3\}$$

$5C_3$

A Column 2

B Column 3

C Column 5

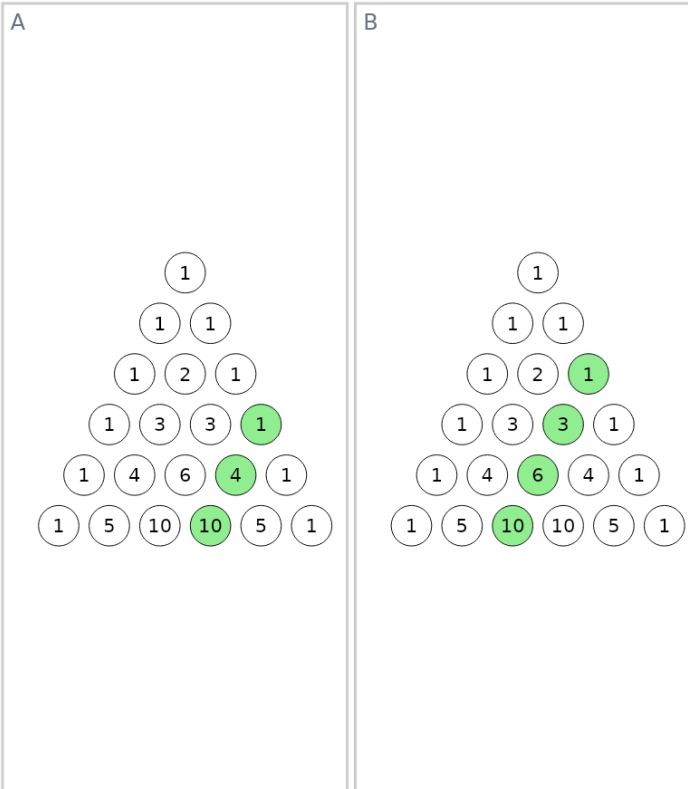
D Column 4



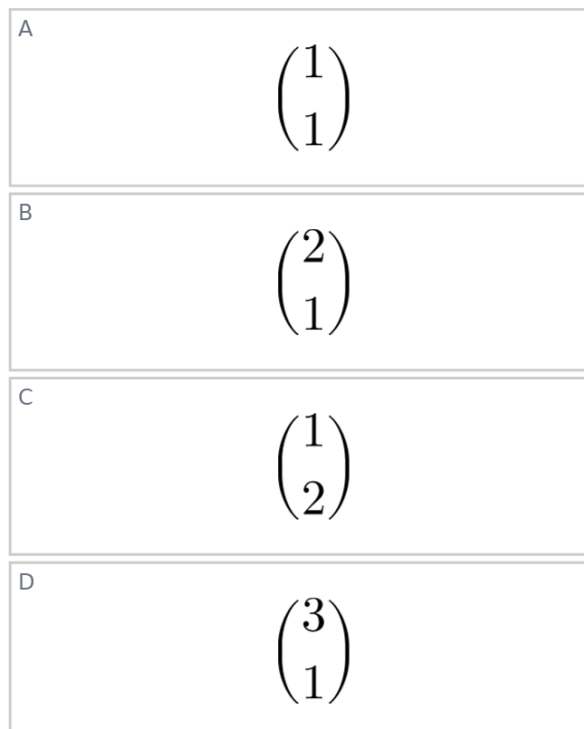
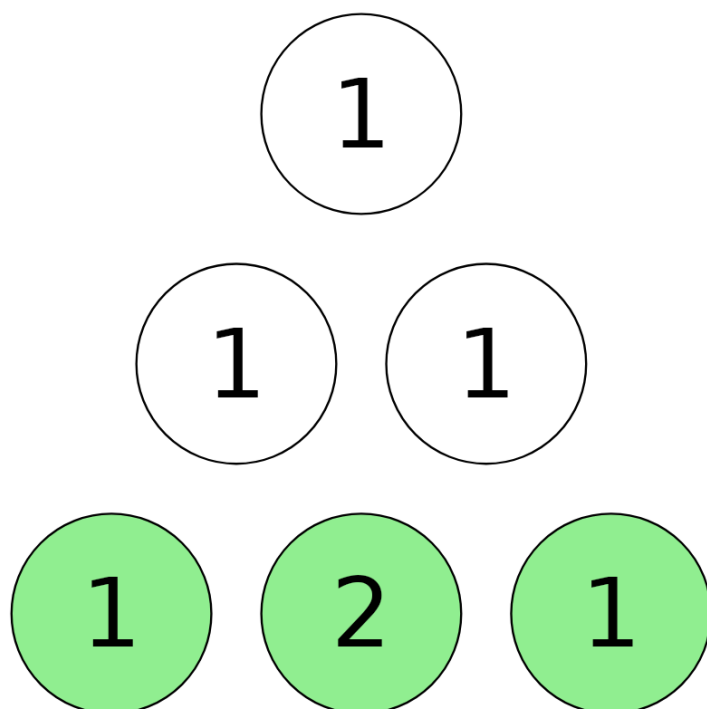
Probability and Statistics - Combinations and Permutations on Pascal's Triangle - ...

- 10** Select the Pascal's triangle with the column for this entry highlighted (counting from 0).
 $\{3 \setminus \text{choose} 2\}$

$$\binom{3}{2}$$



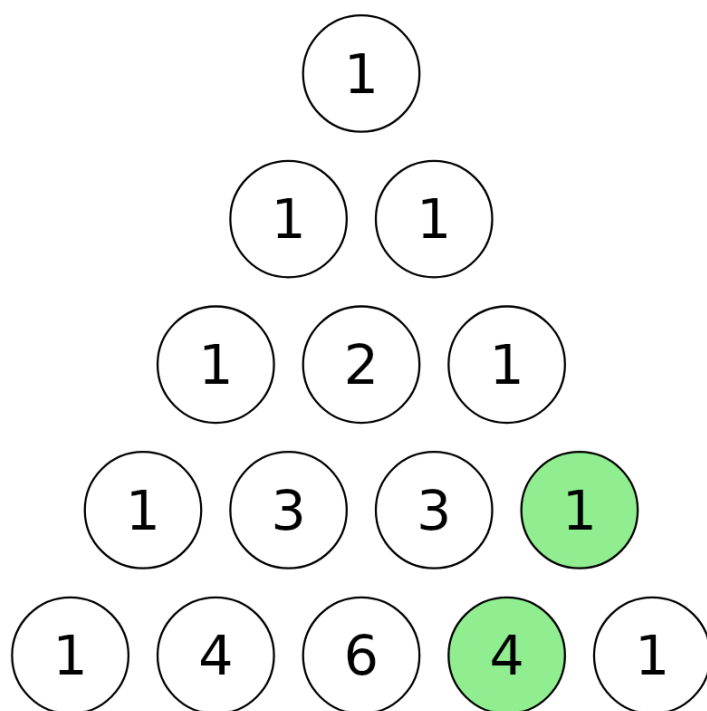
- 11** Which binomial notation matches the highlighted row (counting from 0)?





Probability and Statistics - Combinations and Permutations on Pascal's Triangle - ...

12 Which binomial notation matches the highlighted column (counting from 0)?



A

$$\binom{4}{3}$$

B

$$\binom{4}{4}$$

C

$$\binom{4}{2}$$

D

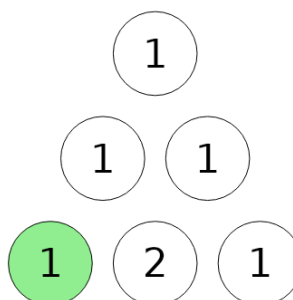
$$\binom{3}{4}$$

13 Select the Pascal's triangle with the entry for this binomial notation highlighted.

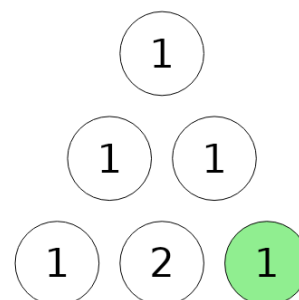
$\{2\choose 1\}$

$$\binom{2}{1}$$

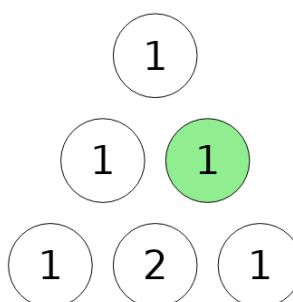
A



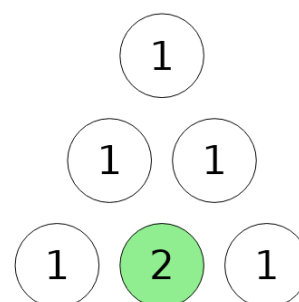
B



C



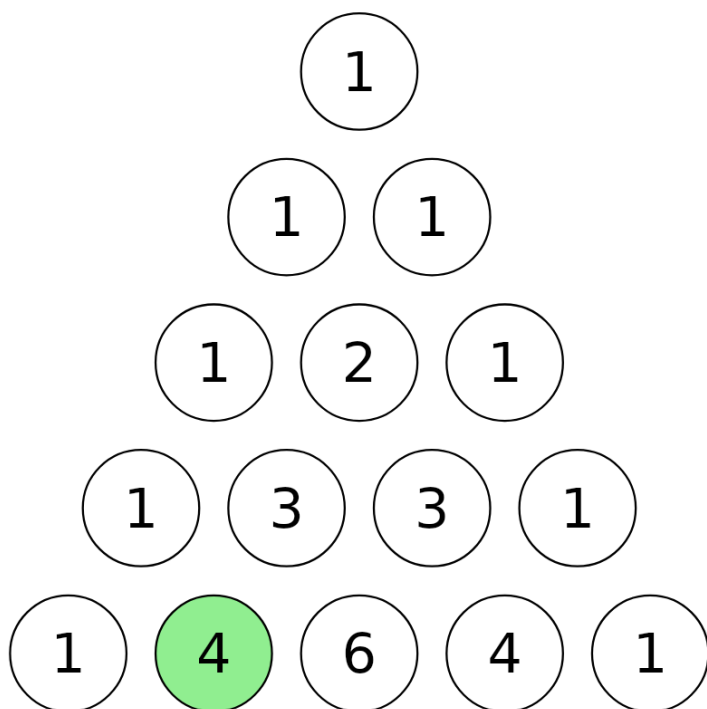
D





Probability and Statistics - Combinations and Permutations on Pascal's Triangle - ...

14 Which binomial notation matches the highlighted entry of Pascal's triangle?



A

$$\binom{4}{1}$$

B

$$\binom{1}{4}$$

C

$$\binom{4}{0}$$

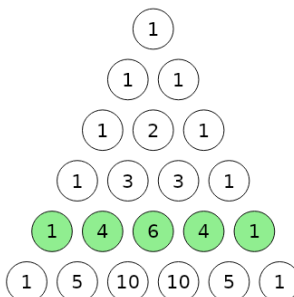
D

$$\binom{4}{2}$$

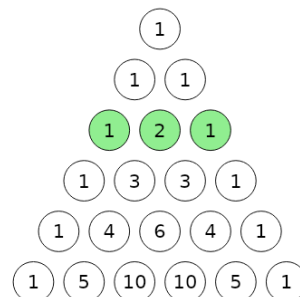
15 Select the Pascal's triangle with the row for this entry highlighted (counting from 0).

$${}_{2}\text{C}_{1}$$

A



B

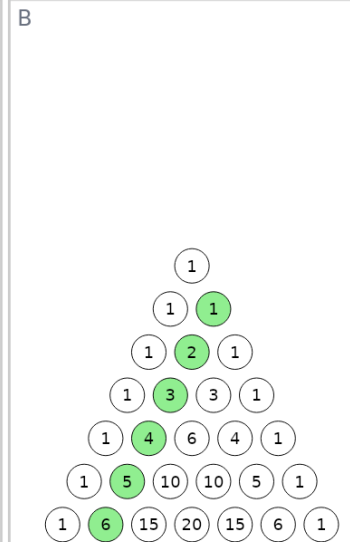
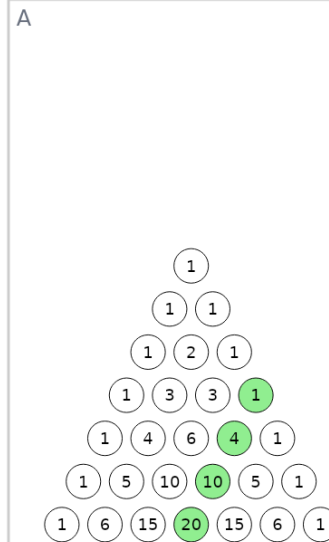




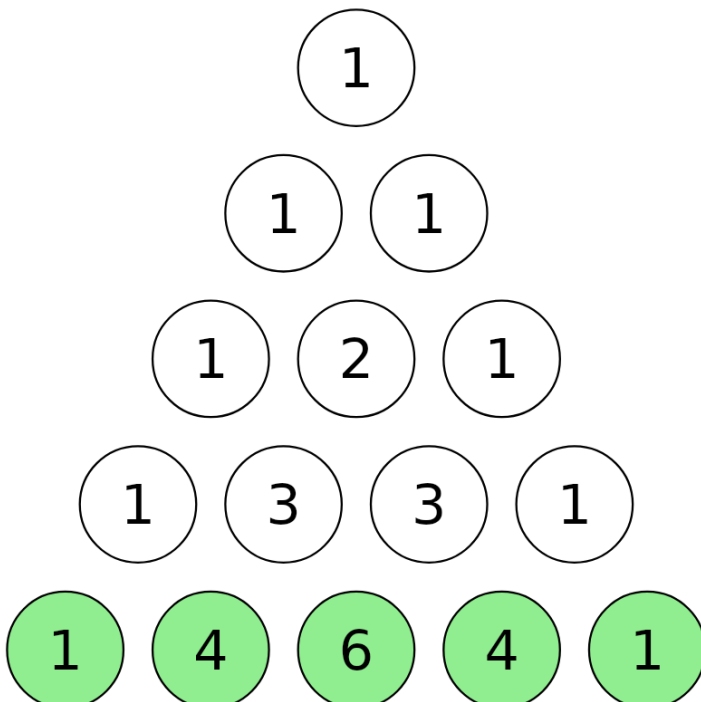
Probability and Statistics - Combinations and Permutations on Pascal's Triangle - ...

16 Select the Pascal's triangle with the column for this entry highlighted (counting from 0).

$${}_5C_1$$



17 Which combination matches the highlighted row (counting from 0)?



A

$${}_5C_2$$

B

$${}_2C_4$$

C

$${}_3C_2$$

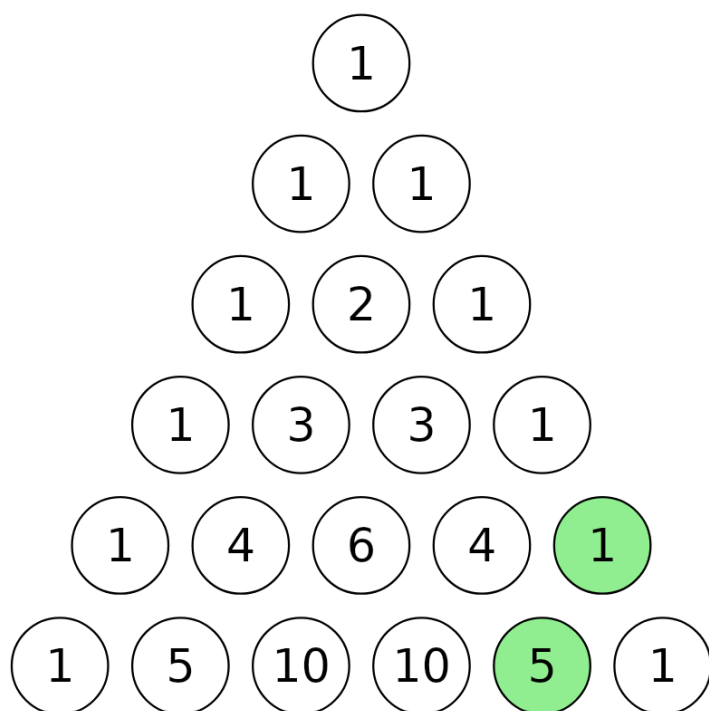
D

$${}_4C_2$$



Probability and Statistics - Combinations and Permutations on Pascal's Triangle - ...

18 Which combination matches the highlighted column (counting from 0)?



A

$${}_5C_3$$

B

$${}_5C_5$$

C

$${}_5C_4$$

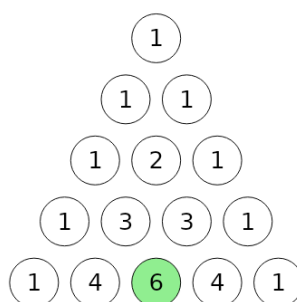
D

$${}_4C_5$$

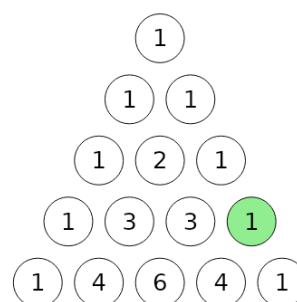
19 Select the Pascal's triangle with the entry for this combination highlighted.

$${}_4C_3$$

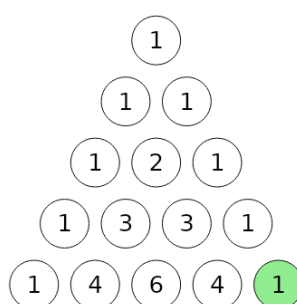
A



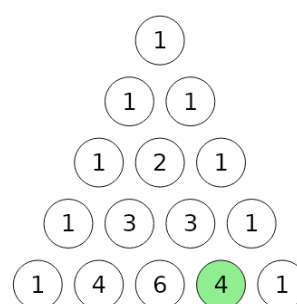
B



C



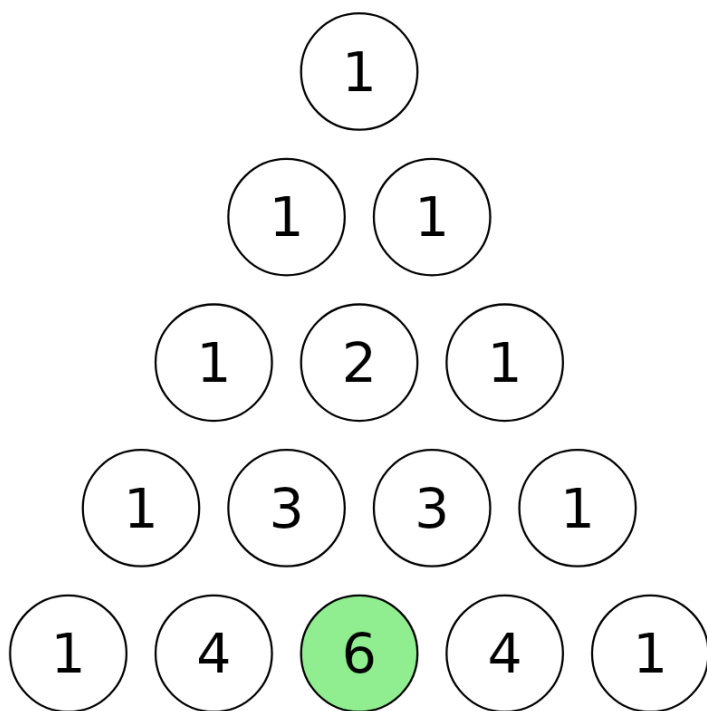
D





Probability and Statistics - Combinations and Permutations on Pascal's Triangle - ...

20 Which combination matches the highlighted entry of Pascal's triangle?



A

$${}_4C_3$$

B

$${}_4C_1$$

C

$${}_4C_2$$

D

$${}_2C_4$$

21 A permutation equals its combination times r factorial: $nPr = nCr \times r!$. Using the combination and factorial below, what is the value of the matching permutation?

$${}_5C_2 = 10 \quad \text{and} \quad 2! = 2$$

$${}_5C_2 = 10 \quad \text{and} \quad 2! = 2$$

A

$${}_5P_2 = 20$$

B

$${}_5P_2 = 12$$

C

$${}_5P_2 = 2$$

D

$${}_5P_2 = 10$$

22 A combination equals its permutation divided by r factorial: $nCr = nPr \div r!$. Using the permutation and factorial below, what is the value of the matching combination?

$${}_4P_3 = 24 \quad \text{and} \quad 3! = 6$$

$${}_4P_3 = 24 \quad \text{and} \quad 3! = 6$$

A

$${}_4C_3 = 30$$

B

$${}_4C_3 = 18$$

C

$${}_4C_3 = 24$$

D

$${}_4C_3 = 4$$

23 What is this permutation in terms of its combination?

$${}_5P_4 = \text{?}$$

$${}_5P_4 = \text{?}$$

A

$${}_5C_4 + 4!$$

B

$${}_5C_4 \cdot 4!$$

C

$${}_5C_4 \cdot 5!$$

D

$$\frac{{}_5C_4}{4!}$$

24 What is this combination in terms of its permutation?

$${}_5C_4 = \text{?}$$

$${}_5C_4 = \text{?}$$

A

$$\frac{{}_5P_4}{5!}$$

B

$${}_5P_4 \cdot 4!$$

C

$$\frac{{}_5P_4}{4!}$$

D

$${}_5P_4 - 4!$$



Probability and Statistics - Combinations and Permutations on Pascal's Triangle - ...

- 25** Which Pascal's triangle row and factorial multiplier give this permutation? ($nPr = nCr \times r!$)
 ${}_4P_3$

A	Row 5, multiplier 3!
B	Row 4, multiplier 3!
C	Row 4, multiplier 4!
D	Row 3, multiplier 3!

- 26** Which Pascal's triangle column and factorial multiplier give this permutation? ($nPr = nCr \times r!$)
 ${}_5P_3$

A	Column 3, multiplier 5!
B	Column 3, multiplier 3!
C	Column 4, multiplier 3!
D	Column 5, multiplier 3!

- 27** Select the Pascal's triangle with the row highlighted and the correct factorial multiplier ($nPr = nCr \times r!$).
 ${}_4P_2$

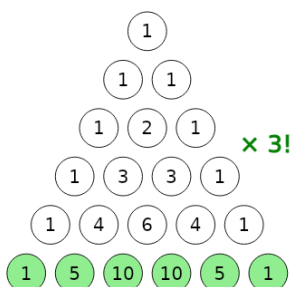
A

B

C

D

- 28** Which permutation matches the highlighted row and the factorial multiplier?



A	${}_3P_5$
B	${}_6P_3$
C	${}_4P_3$
D	${}_5P_3$



Probability and Statistics - Combinations and Permutations on Pascal's Triangle - ...

29 Select the Pascal's triangle with the column highlighted and the correct factorial multiplier ($nPr = nCr \times r!$).

$${}_4P_3$$

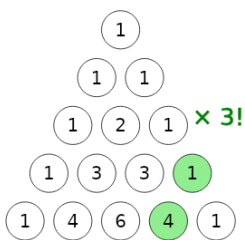
A

B

C

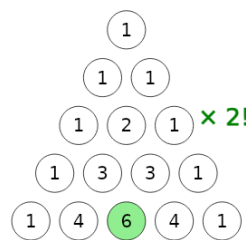
D

30 Which permutation matches the highlighted column and the factorial multiplier?



- A ${}_4P_4$
- B ${}_4P_3$
- C ${}_4P_2$
- D ${}_3P_4$

31 Which permutation matches the highlighted entry and the factorial multiplier?



- A ${}_4P_1$
- B ${}_4P_3$
- C ${}_4P_2$
- D ${}_2P_4$