Kuta Software - Infinite Algebra 2

Name_____

Permutations

Date_____ Period_____

List all possible permutations.

1) 1, 2, 3

2) T, V, W, taken two at a time

3) ☺, ☼, ♥, ▲, taken two at a time

4) A, B, C, D

Evaluate each expression.

5) $_4P_2$

6) $_5P_1$

7) $_6P_2$

8) $_6P_6$

9) $-4 + {}_7P_4$

10) $5 \cdot {}_6P_5$

Find the number of unique permutations of the letters in each word.

11) DESIGN

12) MATH

13) CHEESE

14) FURTHER

15) BALLISTICS

16) BILLIONAIRE

Critical thinking questions:

17) Write a word for which there are 30 unique permutations of the letters.

18) Simplify $_xP_{x-2}$

Name_____

Permutations

Date_____ Period_____

List all possible permutations.

1) 1, 2, 3

123   213   312
132   231   321

2) T, V, W, taken two at a time

TV   VT   WT
TW   VW   WV

3) ☺, ☼, ♥, ▲, taken two at a time

☺☼   ☼☺   ♥☺   ▲☺
☺♥   ☼♥   ♥☼   ▲☼
☺▲   ☼▲   ♥▲   ▲♥

4) A, B, C, D

ABCD	BACD	CABD	DABC
ABDC	BADC	CADB	DACB
ACBD	BCAD	CBAD	DBAC
ACDB	BCDA	CBDA	DBCA
ADBC	BDAC	CDAB	DCAB
ADCB	BDCA	CDBA	DCBA

Evaluate each expression.

5) $_4P_2$

12

6) $_5P_1$

5

7) $_6P_2$

30

8) $_6P_6$

720

9) $-4 + {_7P_4}$

836

10) $5 \cdot {_6P_5}$

3,600

Find the number of unique permutations of the letters in each word.

11) DESIGN

720

12) MATH

24

13) CHEESE

120

14) FURTHER

2,520

15) BALLISTICS

453,600

16) BILLIONAIRE

3,326,400

Critical thinking questions:

17) Write a word for which there are 30 unique permutations of the letters.

LEVEL

18) Simplify $_xP_{x-2}$

$$\frac{x!}{2}$$