Candle Center - Infinite Geometry Name_____

Combinations

Date_____ Period____

List all possible combinations.

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

2) A, B, C, D, taken two at a time

3) ☺, ☼, ♥, ▲, taken three at a time

4) 4, 5, 6, 7, taken four at a time

Evaluate each expression.

5) ${}_{22}C_{02}$

6) ${}_{11}C_{8}$

7) ${}_{21}C_{8}$

8) ${}_{25}C_{23}$

9) ${}_{42}C_{5}$

10) ${}_{17}C_{10}$

11) ${}_{81} \cdot 4C_{11}$

12) ${}_{20}C_{16} + 1$

13) $\frac{{}_{20}C_{5}}{8}$

14) $-6 + {}_{19}C_{5}$

Critical thinking questions:

15) Explain why ${}_{n}C_{2} = {}_{n}C_{n-2}$

16) Write a combination that equals 12345

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TV VW
TW

2) A, B, C, D, taken two at a time

AB BC
AC BD
AD CD

3) ☺, ☼, ♥, ▲, taken three at a time

☺☼♥ ☼♥▲
☺☼▲
☺♥▲

4) 4, 5, 6, 7, taken four at a time

4567

Evaluate each expression.

5) ${}_{22}C_{20}$

231

6) ${}_{11}C_{8}$

165

7) ${}_{12}C_{8}$

495

8) ${}_{25}C_{23}$

300

9) ${}_{24}C_{5}$

42,504

10) ${}_{17}C_{10}$

19,448

11) $4 \cdot {}_{18}C_{11}$

127,296

12) ${}_{20}C_{16} + 1$

4,846

13) $\frac{{}_{20}C_{5}}{8}$

1,938

14) $-6 + {}_{19}C_{5}$

11,622

Critical thinking questions:

15) Explain why ${}_{n}C_{2} = {}_{n}C_{n-2}$

Choosing $n - 2$ means two are being left behind. You could think of it choosing those two.

16) Write a combination that equals 12345

${}_{12345}C_{1}$