MA 12 LG 15 (Combinatorics)

[illegible]

[illegible]

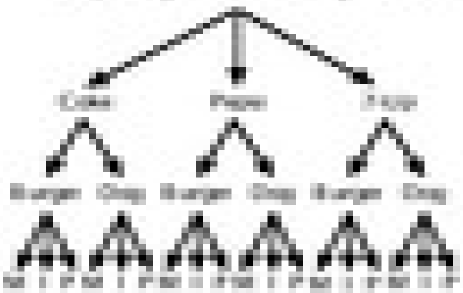
[illegible]

Example for [illegible]

Draw a tree diagram to list all the possibilities for the following.

How many different combinations can be made from

Drink	Dinner	Dessert
Coke	Burger	[illegible]
Pepsi	Hot Dog	Ice Cream
7-Up		Pie



[illegible] = 3 × 2 × 3 = 18 [illegible]

Permutations

Factorial [illegible]

Permutations [illegible]

[illegible]

Example for [illegible]

Express in factorial notation.

8 × 7 × 6 × 5 × 4 × 3 × 2 × 1 = 8!

Example for [illegible]

Express as a product of natural [illegible] in reduced form.

5! = 5 × 4 × 3 × 2 × 1

[illegible]

Example for [illegible]

Express 12 × 11 × 10 × 9 in the form $_nP_r$

[illegible]

$n = 12 \quad r = 4 \qquad = {}_{12}P_4$

Combinations

Factorial [illegible]

Combinations [illegible]

[illegible]

Example for [illegible]

Express as a product in reduced form.

[illegible]

= 5040

[illegible]

= 9 × 7 × 2 × 2

= 252