Lesson Review

Learning Objectives

Please list the learning objectives of this module that you have achieved:

I certified that I am able to:

- Apply basic principles of counting.

- Select the appropriate principle when solving real-world problems.

- Identify and count the different ways items can be combined.

Learning Review

Please complete the table below (refer to the attached Learning Process table).

Learning Objective	Concept	Step	Strategy	Resource	Reflection	Learning
	What concept / key-word did you focus on?		What strategy did you apply? Why did you choose this? How did you apply it? Did it work well? How do you know?	What resource did you use? Why did you choose this? Did it work well?	In hindsight, was this strategy and resource • appropriate? Why? • identify other options • was this the best option? Why?	Generalise: what you learned that could be applied in the future in a different context
Counting	Apply basic principles of counting	Identify	Identify Concepts and make a list of resources needed	Unit Site Content		
		Making Sense	Read Text and Site Content, watch lecture videos, watch and follow external videos	Prescribed Text Book		
				Recorded Lectures		
		Making Meaning	Attempt practical questions, verify answers against online tools to identify any mistakes and try again	External Videos		

Counting	Select the appropriate principle when solving real-world problems	Identify	Identify Concepts and make a list of resources needed	Unit Site content Prescribed Text Book Recorded Lectures External Videos		
		Making Sense	Read Text and Site Content, watch lecture videos, watch and follow external videos			
		Making Meaning	Attempt practical questions, verify answers against online tools to identify any mistakes and try again			
Counting	Identify and count the different ways items can be combined	Identify	Identify Concepts and make a list of resources needed	Unit Site content Prescribed Text Book Recorded Lectures External Videos		
		Making Sense	Read Text and Site Content, watch lecture videos, watch and follow external videos			
		Making Meaning	Attempt practical questions, verify answers against online tools to identify any mistakes and try again			

Counting functions

①

1. 5 elements
   7 choices $= 7^5 = 16807$

2. No more than 2 elements in B mapping to A $7 \times 6 \times 5 \times 4 \times 3$

3. $1 \times 1 \times 7 \times 7 \times 7 \quad 343$

4. $7 \times 7 \times 1 \times 6 \times 7 = 2058$

Divisability

②

1. $4 \times 1 \times 1 = 4$

2. $4 \cdot 9 \times 8 = 288$

3. $\left[\frac{499}{7}\right] - \left[\frac{99}{7}\right] = 71 + 4 = 57$

4. $\left[\frac{499}{13}\right] - \left[\frac{99}{13}\right] = 38 - 7 = 31$

5. $\left[\frac{499}{7 \times 13}\right] - \left[\frac{499}{7 \times 13}\right] = 5 - 1 = 4$

6. $57 + 31 - 4 = 84$

7. $((499 - 100) + 1) - \left(\left[\frac{499}{11} - \frac{99}{11}\right]\right) = 400 - (45 - 9) = $

4

Counting Letters.

③

1   $\binom{5}{4} \times \binom{21}{1} = 105$

2   TOTAL $\binom{26}{5} = 65780$

    4   $\binom{5}{4} \times \binom{21}{1} = 105$

    5   $\binom{5}{5} \times \binom{21}{0} = 1$

    3   $65780 - (105 + 1) = 65674$

3   TOTAL $\binom{26}{5} = 65780$

    0   $\binom{5}{5} \cdot x \binom{21}{0} = 1$

    1   $65780 - 1 = 65779.$

Integer solutions

④ $\binom{19+3-1}{19} = \binom{21}{19} = \frac{21 \times 20}{2} = 210$

⑤ $\binom{25+4-1}{25} = \binom{28}{25} = \frac{28 \times 27 \times 26}{3 \times 2 \times 1} = 32$

Counting

Click on a question number to see how your answers were marked and, where available, full solutions.

Question Number	Score			
1	1	/	1	Review
2	1	/	1	Review
3	1	/	1	Review
4	1	/	1	Review
5	1	/	1	Review
6	1	/	1	Review
Total	**6**	**/**	**6 (100%)**	

Performance Summary

Exam Name:	Counting
Session ID:	11399442540
Exam Start:	Mon May 25 2020 21:20:44
Exam Stop:	Mon May 25 2020 21:29:36
Time Spent:	0:08:50

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Exit Exam