References:

Levin, O. (2020). *Discrete Mathematics: An Open Introduction*. http://discrete.openmathbooks.org/dmoi3/frontmatter.html

(Levin, 2020).

Sample Post:

Hello Everyone,

Based on set A, I will choose subset M = {%,#, @}. The power set of M is *P*(M)= {

ϕ

, {%}, {#}, {@}, {%,#}, {%, @}, {#, @}, {%,#, @}}. M is a subset of set A. The cardinality of set M is 3 because it contains 3 elements. The power set, or set of all possible subsets, of set M contains 8 elements because the cardinality of power sets is defined as 2_x where x is the cardinality of the original set (Fisher, 2016). The power set of set M consists of the empty set ({}), the individual elements as sets ({%}, {#}, {@}), and the various combinations of those elements ({%,#}, {%, @}, {#, @}, {%,#, @}). Set M is a subset of set A and the power set of M is a subset of the power set of A. Additionally, set M intersects set A with 3 elements, and power set M intersects set A with 3 elements;.

Thanks,

-James Bond

References:

Fisher, P. (2016). *Programming Foundations: Discrete Mathematics* [Video]. Linkedin Learning. Retrieved October 7, 2020, from https://www.linkedin.com/learning/programming-foundations-discrete-mathematics/power-sets?u=2245842

Sample Reply:

Hi James,

My power subset is P(G) = { ∅, {#}, {$}, {#, $}}, and yours is P(M)= {{}, {%}, {#}, {@}, {%,#}, {%, @}, {#, @}, {%,#, @}}. Since the only element our subsets have in common is # ∈ {#, $}, and # ∈ {%,#, @}, then the intersection of our power sets would be: P(G) ∩ P(M) = {∅, {#}}.

Your task for this discussion is as follows:

1. Consider the set A = {&, %, $, #, @}. Choose a subset of *A*, _*not already chosen by **another student***_, and write it in list form. X
2. Write the **power set** of **your subset**. X
3. In your own words, discuss how the **power set** you created in part (b) **relates to the set *A*. X**
4. **In your responses to peers**, address the following:
    1. What is the **intersection** of your power set and theirs?
    2. Contrast your explanations to part (c).

Hello everyone,

Given set A, we know set B, B = {&, %, @}, is a subset of A. The set of all subsets of B is the power set of B (Levin, 2020). P(B) = {∅, {&}, {%}, {@}, {&, %}, {&, @}, {%, @}, {&, %, @}}. The size of set B or cardinality of B is |B| = 3. The cardinality of the set is the sum of its unique elements (Levin, 2020). We can expect P(B) to intersect set A with 3 elements. Furthermore, we know all elements of the power set of B exist in the power set of A. Thus, P(B) is a subset of P(A).

Thanks,

Lauren Alexandra

References:

Levin, O. (2020). *Discrete Mathematics: An Open Introduction*. http://discrete.openmathbooks.org/dmoi3/frontmatter.html

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Hi Angelo,

My power set is $P(B) = \{\varnothing, \{\&\}, \{\%\}, \{@\}, \{\&, \%\}, \{\&, @\}, \{\%, @\}, \{\&, \%, @\}\}$, and your power set is $P(Q)=\{\varnothing, \{\$\},\{\#\},\{@\},\{\$,\#\},\{\$,@\},\{\#,@\},\{\$,\#,@\}\}$. The only element our subsets have in common is $@ \in \{\&, \%, @\}$, and $@ \in \{\$, \#, @\}$. Thus, the intersection of our power sets is $P(B) \cap P(Q) = \{\varnothing, \{@\}\}$.
