Lesson 19: Substituting to Evaluate Addition and Subtraction Expressions

Problem Set

1. Suellen and Tara are in sixth grade, and both take dance lessons at Twinkle Toes Dance Studio. This is Suellen’s first year, while this is Tara’s fifth year of dance lessons. Both girls plan to continue taking lessons throughout high school.
   1. Complete the table showing the number of years the girls will have danced at the studio.

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| --- | --- | --- |
| **Grade** | **Suellen’s Years of Experience Dancing** | **Tara’s Years of Experience Dancing** |
| Sixth |  |  |
| Seventh |  |  |
| Eighth |  |  |
| Ninth |  |  |
| Tenth |  |  |
| Eleventh |  |  |
| Twelfth |  |  |

* 1. If Suellen has been taking dance lessons for years, how many years has Tara been taking lessons?

1. Daejoy and Damian collect fossils. Before they went on a fossil-hunting trip, Daejoy had fossils in her collection, and Damian had fossils in his collection. On a -day fossil-hunting trip, they each collected new fossils each day.
   1. Make a table showing how many fossils each person had in their collection at the end of each day.

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* 1. If this pattern of fossil finding continues, how many fossils does Damian have when Daejoy has fossils?
  2. If this pattern of fossil finding continues, how many fossils does Damian have when Daejoy has fossils?

1. A train consists of three types of cars: box cars, an engine, and a caboose. The relationship among the types of cars is demonstrated in the table below.

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| **Number of Box Cars** | **Number of Cars in the Train** |
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* 1. Tom wrote an expression for the relationship depicted in the table as. Theresa wrote an expression for the same relationship as. Is it possible to have two different expressions to represent one relationship? Explain.
  2. What do you think the variable in each student’s expression represents? How would you define them?

1. David was when Marieka was born. Complete the table.

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| **Marieka’s Age in Years** | **David’s Age in Years** |
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1. Caitlin and Michael are playing a card game. In the first round, Caitlin scored points, and Michael scored points. In each of the next few rounds, they each scored points. Their score sheet is below.

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| --- | --- |
| **Caitlin’s Points** | **Michael’s Points** |
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* 1. If this trend continues, how many points will Michael have when Caitlin has points?
  2. If this trend continues, how many points will Michael have when Caitlin has points?
  3. If this trend continues, how many points will Caitlin have when Michael has points?
  4. If this trend continues, how many points will Caitlin have when Michael has points?

1. The high school marching band has drummers this year. The band director insists that there are to be more trumpet players than drummers at all times.
   1. How many trumpet players are in the marching band this year?
   2. Write an expression that describes the relationship of the number of trumpet players () and the number of drummers ().
   3. If there are only trumpet players interested in joining the marching band next year, how many drummers will the band director want in the band?