

# Addition and Subtraction Problem Situations

ACTIVE SITUATIONS				
	Result Unknown	Change Addend Unknown	Start Addend Unknown	
Add-To	<p>Paulo paid \$4.53 for his sandwich. Then he added \$1.50 for a carton of milk to finish his lunch. How much was his lunch?</p> $4.53 + 1.5 = x$ $4.53 = x - 1.5$	<p>Paulo paid \$4.53 for the sandwich in his lunch. Then he added a carton of milk to his tray to finish his lunch. The total for his lunch is \$6.03. How much is a carton of milk?</p> $4.53 + x = 6.03$ $4.53 = 6.03 - x$	<p>Paulo added a sandwich to his tray. He added a carton of milk that cost \$1.50 to his tray. With the sandwich and milk, his lunch cost \$6.03. How much does the sandwich cost?</p> $x + 1.5 = 6.03$ $6.03 - 1.5 = x$	
Take-From	<p>There are 186 students in the 7th grade. 35 left to get ready to play in the band at the assembly. How many students are not in the band?</p> $186 - 35 = x$ $35 + x = 186$	<p>There are 186 students in the 7th grade. After the band students left class for the assembly, there were 151 students still in their classrooms. How many students are in the band?</p> $186 - x = 151$ $x + 151 = 186$	<p>35 band students left class to get ready to play in the assembly. There were 151 students left in the classrooms. How many students are in the 7th grade?</p> $x - 35 = 151$ $35 + 151 = x$	
RELATIONSHIP (NONACTIVE) SITUATIONS				
	Total Unknown	One Part Unknown	Both Parts Unknown	
Part-Part-Whole	<p>The local ice cream shop asked customers to vote for their favorite new flavor of ice cream. 119 customers preferred mint chocolate chip ice cream. 37 preferred açai berry ice cream. How many customers voted?</p> $119 + 37 = x$ $x - 119 = 37$	<p>The local ice cream shop asked customers which new ice cream flavor they like best. 156 customers voted. 37 customers preferred açai berry ice cream. The rest voted for mint chocolate chip ice cream. How many customers voted for mint chocolate chip ice cream?</p> $37 + x = 156$ $x = 156 - 37$	<p>The local ice cream shop held a vote for their favorite new flavor of ice cream. The options were mint chocolate chip and açai berry ice cream. What are some possible combinations of votes?</p> $x + y = 156$ $156 - x = y$	
	Difference Unknown	Greater Quantity Unknown	Lesser Quantity Unknown	
Additive Comparison	<p>Jessie and Roberto both collect baseball cards. Roberto has 53 cards and Jessie has 71 cards. How many fewer cards does Roberto have than Jessie?</p> $53 + x = 71$ $53 = 71 - x$	<p>Jessie and Roberto both collect baseball cards. Roberto has 53 cards and Jessie has 18 more cards than Roberto. How many baseball cards does Jessie have?</p> $53 + 18 = x$ $x - 18 = 53$	<p>Jessie and Roberto both collect baseball cards. Jessie has 71 cards and Roberto has 18 fewer cards than Jessie. How many baseball cards does Roberto have?</p> $71 - 18 = x$ $x + 18 = 71$	

## References

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Carpenter, T. P., Hiebert, J., & Moser, J. M. (1981). Problem structure and first-grade children's initial solution processes for simple addition and subtraction problems. *Journal for Research in Mathematics Education*, 27–39.

Heller, J. I., & Greeno, J. G. (1979). Information processing analyses of mathematical problem solving. In R. Lesh (Ed.), *Applied mathematical problem solving* (pp. 181–206). Evanston, IL: The Ohio State University.

National Governors Association Center for Best Practices and Council of Chief State School Officers. (2010). *Common Core State Standards for Mathematics*. Washington, DC: Common Core Standards Initiative.

Riley, M. S., Greeno, J. G., & Heller, J. I. (1984). Development of children's ability in arithmetic. In *Development of Children's Problem-Solving Ability in Arithmetic*. No. LRDC-1984/37. (pp. 153–196). Pittsburgh University, PA: Learning Research and Development Center, National Institute of Education.