MATH3200: APPLIED LINEAR ALGEBRA
PRACTICE MODULE 23: TRANSLATING WORD PROBLEMS INTO SYSTEMS OF LINEAR EQUATIONS

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We will use here the notation and terminology of Lecture 11.

Question 23.1: Translate the following description into a system of linear equations. Be sure to choose appropriate variables.

"Anne is twice as old as Beth and is one year younger than Clara. The ages of the three girls add up to 11 years."

Question 23.2: Translate the following description into a system of linear equations. Be sure to choose appropriate variables.

"Cody and Dan go shopping for food and beverages. Cody spends twice as much on beverages as Dan does and only one third as much as Dan on food. Overall, Cody ends up spending 50% more money than Dan."

Question 23.3: (a) Translate the following description into a system of linear equations. Be sure to choose appropriate variables.

"A student obtained a total score of 77 on the two term tests combined, a total score of 120 on Test 1 and the Final, and 20 more points on Test 2 than on Test 1."

(b) Write down the coefficient matrix of the system for your chosen variables.

Question 23.4: (a) Translate the following description into a system of linear equations. Be sure to choose appropriate variables.

"The percentage of students in MATH3200 who were born in Ohio is twice as high as the percentage of students in this course who were born in another state of the U.S. and five times as high as the percentage of students in the same course who were born in another country."

(b) Write down the augmented matrix of the system for your chosen variables.