1. Mr. Jones is starting a new business. He borrows money from his bank and an investor. The bank charges an interest rate of 8% and the investor charges 10%. If the total loan amount was $200,000 and the total yearly interest payment was $18,500, how much did he borrow from the investor?

Let x be _____ .   ⟵ Fill in the blanks with a description of each variable.
Let y be _____ .   [Use the steps to set up and solve the linear system.]

2. 1. A researcher is feeding one group of rats a diet containing 32 units of niacin and 22,000 units of retinol each day. There are only two types of pellet food available. Type A contains 0.12 unit of niacin and 100 units of retinol per gram. Type B contains 0.20 units of niacin and 50 units of retinol per gram. How many grams of each food should she feed this group each day?

Let x be the grams of Type A pellets.
Let y be the grams of Type B pellets.

(a). How many units of niacin are in x grams of Type A?   How many units of niacin are in y grams of Type B?

(b). How many units of retinol are in x grams of Type A?   How many units of retinol are in y grams of Type B?

(c). Summarize the information above into the table below. Add the total amount of niacin and retinol into the last column.

	Type A (x grams)	Type B (y grams)	Total
Niacin			
Retinol			

(d). Convert the table to a system of two linear equations and solve the system to find out how many pounds of each kind of nut to use.

3. Jill runs on the treadmill and stationary bike every day. On Monday she does each for $\frac{1}{2}$ hour and covers a total distance of 12.5 miles. On Tuesday she runs for 12 minutes and cycles for 45 minutes, covering a total distance of 16 miles. Assuming that her speeds are the same each day, find her speed in miles per hour for each activity.

Let x be her running speed in mph.
Let y be her cycling speed in mph.   [Use the steps to set up and solve the linear system.]

4. There were 1200 tickets sold to a spaghetti dinner. The adult tickets were priced at $4 and the child tickets were $1.50. If $4062.50 was raised, how many tickets of each type were sold?

Let x be _____ .   ⟵ Fill in the blanks with a description of each variable.
Let y be _____ .   [Use the steps to set up and solve the linear system.]

1. $125,000 from the investor. **2.** 200 grams of Type A and 40 grams of Type B **3.** Runs 5 mph and Cycles 20 mph **4.** 905 adult and 295 children