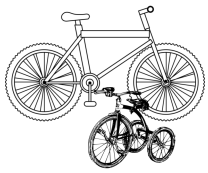

Problem of the Week
Problem A and Solution
Storage Unit

Problem

Jerry bought the contents of two large storage units at an auction for a total of $500. One storage unit contains some bicycles and the other storage unit contains some tricycles.

(a) If each storage unit has exactly 72 wheels, how many bicycles and tricycles are there in total? Justify your answer.

(b) Jerry plans to sell each tricycle for $10 and each bicycle for $25. What is the maximum profit Jerry can make if he is able to sell all the bicycles and tricycles in storage for these prices? Justify your answer.

Solution

(a) Since a tricycle has 3 wheels and there are 72 wheels in one of the storage units, then we can determine the number of tricycles by dividing 72 by 3. There are $72 \div 3 = 24$ tricycles in one of the storage units.

Similarly, since a bicycle has 2 wheels and there are 72 wheels in one of the storage units, then we can determine the number of bicycles by dividing 72 by 2. There are $72 \div 2 = 36$ bicycles in the other storage unit.

(b) To calculate the amount of money Jerry can make from selling the tricycles, we multiply $24 \times \$10 = \$240$.

To calculate the amount of money Jerry can make from selling the bicycles, we multiply $36 \times \$25 = \$900$. Alternatively, we can skip count by 25. A third way to figure out the amount of money is to notice that if he sells 4 bicycles, he would make $100. Then we can use a table to figure out how much he would make selling 36 bicycles:

Bikes Sold	4	8	12	16	20	24	28	32	36
Money Made	$100	$200	$300	$400	$500	$600	$700	$800	$900

Therefore, Jerry could make $\$240 + \$900 = \$1140$ if he sells all of the bikes. We need to subtract the amount he paid for the storage unit to determine the overall profit. Therefore, the maximum profit Jerry could make by selling all the bikes is $\$1140 - \$500 = \$640$.