Unit Rates

1. Of the 30 girls who tried out for the lacrosse team at Euclid Middle School, 12 were selected. Of the 40 boys who tried out, 16 were selected. Use unit rates to determine whether the ratios are equivalent?

2. Devon is trying to find the unit price on a 6-pack of drinks on sale for $\$2.99$. His sister says that at that price, each drink would cost just over $\$2.00$. Is she correct, and how do you know? If she is not, how would Devon's sister find the correct price?

3. Each year Lizzie's school purchases student agenda books, which are sold in the school store. This year, the school purchased 350 books at a cost of $\$1{,}137.50$. If the school would like to make a profit of $\$1{,}500$ to help pay for field trips and school activities, what is the least amount they can charge for each agenda book? Explain how you found your answer.

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Yes, the ratios are the same: The ratio for girls = 12 *to* 30 *or* 2 *to* 5*;*
The ratio for boys= 16 *to* 40 *or* 2 *to* 5*. The value of each ratio is* $\frac{2}{5}$.

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Devon's sister is not correct. She divided the number of drinks by the price. To correctly find the unit price, she needs to divide the price by the number of drinks = $\frac{2.99}{6}$, or approximately 0.50. The cost is approximately 0.50 dollars per drink.

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The unit price per book the school paid is $\frac{1{,}137.50}{350} = 3.25$.

To make $\$1{,}500$, you would need to make a profit of $1500 \div 350 = 4.29$ per book. $3.25 + 4.29$ is the cost per book or $\$7.54$. The least amount to be charged per book is $\$7.54$

($\$7.54 \cdot 350$ generates a revenue of $\$2{,}639$, and $\$2{,}639$ minus the initial cost of the books, $\$1{,}137.50$ (expense), gives $\$1{,}501.50$ of profit.)