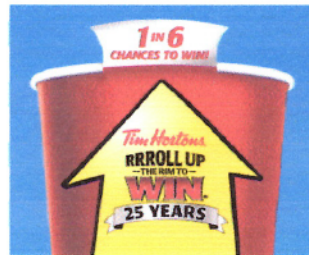# Roll Up The Rim Problem

Question:

How much revenue was made at this Tim Horton's when the photo was taken?

Answer:

To solve this problem, I need to find out how many coffees were sold at Tim Hortons, and then multiply that by the average price of a coffee.

The cup says there is a 1 in 6 chance of winning. That means, for every 6 coffees purchased, there is 1 winner, and 5 losers. Since there were 10 702 winning coffees, I need to multiply 10 702 by 6 to find the total number of coffees purchased.

10 702 x 6 = 64 212

∴ a total of 64 212 coffees were purchased.

Now that I have the total number of purchased coffees, I can calculate the total revenue by multiplying it by the average price of a hot coffee at Tim Hortons.

I will add all of the prices from each coffee and size, and divide by the number of prices.

1.34 + 1.59 + 1.74 + 1.96 + 1.71 + 2.00 + 2.29 + 2.52 + 1.38 + 1.62 + 1.86 + 2.05 + 1.95 + 2.24 + 2.52 + 2.76 + 2.00 + 2.59 + 3.29 + 2.25 + 2.84 + 3.54 + 2.60 + 3.19 + 3.89 ÷ 25 = $2.31

To find this total revenue, I need to multiply the total number of coffees purchased by the average price of a coffee.

Coffee sales = 64 212 cups x $2.31/cup = $148 329.72
Sales Tax (HST 13%) = $148 329.72 x 0.13 = $19 282.86
Total coffee revenue = $148 329.72 + $19 282.86 = $ 167 612.58

Final Answer

∴ the total revenue from coffee sales that was made at this Tim Hortons, including sales tax, was approximately $168 000.

Assumptions

- The prize winning coffees were all purchased and redeemed at this location.

- Every type and size of hot coffee was equally likely to be purchased. This is why an average selling price of all coffees and sizes was used.