

# Problems from Truro Junior High School

Andrew Muir, Michael MacMullin, Adam Hinton, Rose, Renee, Catherine-Anne, Trevor, Krystle, Melaine, Sarah, Amanda Gibeault, Edwin, Natalie, Shauna, Amy, Valerie Nickerson, Ashley Church, Peter Martin, Janice, Mason, Derek, Justin Dubreuil, Joesph Midemia, Robert Sanford, Jason, Matthew, Jeff Westlake and Melissa R. Shaw.

In the Spring of 1997 we received a number of messages from grade 8 students at Truro Junior High School in Truro, Nova Scotia. Their teacher, Mr. Paul Dennis (pdennis@tjhs.ednet.ns.ca) had them solve the problems in the resource [Experiment in Teaching and Learning Problem Solving](#) and send us their solutions. We suggested that they make up some problems of their own to put on the Math Central site and these are the problems that they sent us.

The Centralizer

## The Bailey-Johnson Race.

Andrew Muir, Michael MacMullin, and Adam Hinton

Donovan Bailey is having trouble trying to figure out who is most likely to win the 150m race between him and Michael Johnson. The figures are as follows. Donovan takes 2.4 seconds to reach 10m. After that he stays constant and he does the 100m in 9.84 seconds. Michael Johnson takes 2.8 seconds to reach 11 m. After that he stays constant and he does the 200m in 19.32 seconds.

Who is faster, and by how much?

## Mickey and Jerry's Dirt Bikes.

Mikey Onslow rides his dirt bike at full speed for 3.5h in a straight line and then stops. His friend, Jerry Goodrich, starts riding after him. Jerry's bike is slower than Mikey's so he goes  $\frac{1}{6}$  slower. If Mikey's top speed is 280km/h, and he rode for 3.5h too how far did Mikey go? How far did Jerry go? How much distance is there between the two of them when they stop and what is Jerry's top speed?

## Trees and Snacks.

Rose, Renee and Catherine-Anne

You are a horse rider who plants trees. You plant one tree every 2400m. If you travel 57500000cm and eat 2 snacks every 500m, how many snacks did you eat per tree? Explain yourself!

## Wanda the Witch.

Trevor, Krystle, Melaine and Sarah

Wanda the Witch was making a magic potion which would allow her to disappear into thin air and become invisible.

The recipe

## Ingredients.

600mL Eye of Newt  
300mL Breath of Warlock  
459mL Skin of Toad  
203mL Fire of Dragon  
56mL Mist of Labium  
89mL Cicada Water  
689mL Chrysalises Fire  
578mL Blood of Diptera  
354mL Trilobite of Mimicry  
938mL Coxa of Elytra  
746mL Dermaptera of Amber  
256mL Odonata of Goliath

## Directions:

Mix all the ingredients in a 10,000mL cauldron and stir over heat until the mixture is a nice purple color.

## Dosage:

Take a 1000mL dose 1 hour before going to bed, and after waking up it will work for 24 hours. Do not exceed dose as it will result to breathing fire like a dragon then burning your lungs into a crisp.

1. What is the percentage of each ingredient?
2. Wanda had a delimma. She was missing Coxa of Elytra and Cicada Water the two most important ingredients.
  - o What percentage of the ingredients did Wanda have?
  - o What percentage of the ingredients did Wanda not have?
3. If Wanda completed the potion ABOUT how many doses would she have?

## Visiting Friends.

### Amanda Gibeault and Edwin

Jeff was skipping along the road at four kilometers each hour. Cindy was walking on the other side of the road at fifty percent times more the speed that Jeff was skipping. Jeff was going to Brian's house which was seven hundred sixty three thousandths of a kilometer away. Cindy has to stop by the mall to meet her friend, Josh. It takes about fifteen minutes to get to the mall from her house, and she has already been walking for two tenths of a percent of the fifteen minutes. Who will see there friend first, Brian or Josh, and by how much?

## Jane's Mother's List.

### Natalie, Shauna and Amy

Jane's mother,a confusing women,told Jane to pick up 81 fruits by following this chart and finding out the number she forgot.She told her to get the following:

**Fruit    Number**

Oranges 8

Bananas 3 times the number of oranges divided by 4

Grapes Times the number of bananas by 7

Apples Divide the number of grapes by 6 and add the forgotten number.

## Buck 2 and Howies.

Valerie Nickerson, Ashley Church, and Peter Martin

200 people were in the mall. 45% went into the "Buck 2". Then 10% more of the people left in the mall, went in the "Buck 2". 9 people in the "Buck 2" went into the mall. 75% of the people in the mall went into "Howies".

How many people are in the "Buck 2", in the mall, and in "Howies"?

## Sam's New Bus.

Janice, Mason and Derek

Sam the bus driver bought a new bus that holds 125 people. It cost him \$25,000,342. On the first day, at the first stop, he picked up 120 people. At the next stop 1/3 got off the bus, and 16 got on. The next stop 1/4 got off and 46 got on. Then on the last stop 50% of the people got off and 5 got on. How many males were left on the bus, if half the remaining people on the bus were females.

## Who Pays for the Movie?

Justin Dubreuil and Joesph Midemia

Once upon a blue moon ago, Larry and Moe decided to go to the movies. Before they went Moe bet Larry that whoever got there first did not have to pay for himself to get into the movies. So they shook and went on their way.

Little did Larry know Moe lived 2.4km closer to the theater than himself. So Larry started to run, while Moe kept himself on an easy walking pace. Larry takes two equal steps to one of Moe's. If Larry lived 4.3 km to the theater, who would win? And by how much?

## Baltimore, Seattle and New York.

Robert Sanford

The Baltimore Orioles season record was 30 wins 10 losses 10 ties. Seattle had 3 times as many wins as Baltimore. New York has 2 times less losses than Baltimore. Seattle has the same number of losses as New York. Seattle's ties were twice as many as Baltimore subtract 15. New York's ties were 2 times as many as Seattle's. New York's wins were 60.

Which team has the best win percentage and by how much?

## Mr. Dennis' Salary.

Jason and Matthew

The Liberal government came up with a plan to save some money. They decided to cut all the teachers salary by 5.5% per year. If Mr.Dennis makes \$30,000 per year. How many years would it take for his to decrease by 50% of what he original made ?

## Star Trek Problem.

Jeff Westlake

On the Starship Voyager, the ratio of Vulcans to Humans to Klingons is 10:20:35. Vulcans use pure logic, humans jump into a problem and Klingons are very agressive. If there are 650 people on board, how many of each race are there?

## The Gravedigger.

Melissa R. Shaw

One year a gravedigger had to keep track of the amount of people he buried each month.He kept accurate data for some months but not for others.Here is his data.

Month	Deaths
January	100
February	35
March	32 less than in Feb.
April	25% less than in Jan.
May	20
June	55
June	55
July	6 less than in May
August	0
September	18
October	7 less than in Sept.
November	1 more than in Sept.
December	half as many as in Jan.

How many people died in March, April, July, Oct, Nov and Dec? How many people died that year? What percent of them died each month?

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Obtained from Math Central

<http://MathCentral.uregina.ca/>