

UBC Grade 6–7 Workshop Problems 2003

1. Vincent's Pizza delivers you a pizza, but after you open the box you discover half the pizza is missing! If you eat $\frac{1}{3}$ of what's left in the box, what fraction of the entire pizza is left?
2. Mr. Wang can type 40 words per minute on a keyboard, while Mr. Wong can only type 25 words per minute. If both of them start typing at the same time, by how many words is Mr. Wang ahead, after 12 minutes?
3. Oi-Lam buys a bag of 60 apples for her family, but she finds that one-quarter of them are rotten. If she gives an equal number of the good apples to her mother, father, sister, brother and herself, how many does each get?
4. Ken buys some cans of pop, all the same size. He wants to find out how much one can of pop weighs. He has a balance, but not very many weights. However, Ken discovers that 5 cans of pop balance with 2 cans of pop and a $\frac{5}{8}$ kg weight. How much does one can of pop weigh?
5. Edmond has ten "Fu-Gi-Oh" cards. Five of these are Blue Eyes White Dragon cards, three are Dark Magician cards and the rest are Summoned Skull cards. The cards are shuffled and the first two cards Edmond picks up are a Blue Eyes White Dragon and a Dark Magician. What is the probability that he will pick a Blue Eyes White Dragon card from the rest of the cards?
6. The perimeter of square A is 12 cm. If the area of square B is four times the area of square A, what is the perimeter of square B?
7. To make orange juice from frozen concentrate, you need to mix three parts water with one part concentrate. How much water do you need to fill a 2000 mL jug $\frac{4}{5}$ full of orange juice made from frozen concentrate?
8. Frank wants to buy a Z-Box video game system with his birthday money. His mother can buy it at the store where she works for 30% off the regular price of \$400. But MegaStore is having a sale, offering 25% off its regular price of \$375. Where should Frank buy his Z-Box? What is the difference in the prices he would pay?
9. Suppose the number of ants in an ant colony doubles every week. If the colony now has 300 ants, how many ants will there be after 8 weeks?
10. Keenan and Lucy need to fill their team's water jugs before the basketball game, but they are only allowed to fill their jugs three-quarters full. Keenan's jug can hold 60 litres and is already one-third full. Lucy's jug can hold 48 litres and is already one-quarter full. Who needs to put more water in their jug to get it three-quarters full? How much more?
11. There are 35 students in Mr. Kazemi's Social Studies class. Of these students, 18 handed in their homework assignment. Twenty of the students had a math exam that day. Twelve students handed in no homework and had no math exam that day. How many students handed in their homework and also had a math exam that day?

12. Mike, Ned and Owen combined to score 171 goals one hockey season. Mike scored 60 goals, and Ned scored twice as many goals as Owen. How many goals did Ned and Owen score each?
13. Elissa's stationary store buys packages of Clic pens for \$1.85 each from the wholesaler, and sells the packages for 20% more. If she sells \$1887 worth of packages of pens, how much profit does she make?
14. Edward, Frank and Gillian are in a long race with a 36 km run and a 120 km bike ride. Edward runs at 9 km per hour and bikes at 30 km per hour. Frank runs at 9 km per hour and bikes at 24 km per hour, and Gillian runs at 12 km per hour and bikes at 24 km per hour. Who will win? What is the winning time?
15. Laura is four times Jon's age, but in four years, Laura will be only twice Jon's age. How old are they now?
16. Katie is holding two paper bags and a toonie. In Bag #1 there is one red candy and one white candy, and in Bag #2 there are two red candies. All three red candies are exactly the same. She gets you to play a game. First, you flip the toonie. If you get heads, you keep the toonie and then choose a candy from Bag #1 and keep it. If you get tails, you must give the toonie back to Katie and choose a candy from Bag #2 and keep it. Katie's rule is if you get a white candy, the game is over, but if you get a red candy then you can keep choosing candies one at a time, switching bags after each choice, until you get a white candy, or there are no more candies. How many *different* outcomes does Katie's game have?
17. Mark has a string of Christmas lights with five empty sockets in a row, and a package of five new bulbs coloured red, green, blue, orange and yellow. Because it is Christmas, Mark wants the red bulb to always be next to the green bulb. If he follows this rule, how many different ways can Mark put all the new bulbs in all the empty sockets?
18. Professor Warner has discovered a new kind of animal called a glibble. Each glibble lives for two days. One day after it is born, it gives birth to a new glibble, and the next day it gives birth to one more new glibble and then dies. If the professor has one newborn glibble on the first day, how many live glibbles would he have on the ninth day?