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## Introduction

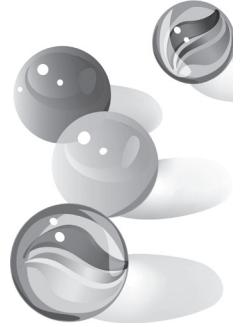
Whose cookies have more raisins? Who babysits for a greater number of hours? Which item weighs more? Which sale is a better deal? Which snack has more calories? Whose coins are worth more? Who travels further? Who has the higher score? Whose lunch costs more? Which fence is longer? Who sells more items? Who has more money left? Comparisons provide a motivating backdrop to perform mathematical calculations in a wide range of contexts.

This collection of 150 problems asks students in Grades 2 and 3 to perform calculations to make a comparison and come to a decision. The *Dare to Compare Math* format recasts more traditional math problems from a single calculation to two or more calculations in order to make a conclusion. Rather than compute the cost of a lunch, the student computes the price of two lunches to determine which meal is less expensive. Instead of calculating the number of calories in a snack, the student calculates the number of calories in two snacks to determine which has fewer calories.

The problems are intended to be non-routine but accessible. The solution process is open-ended, allowing students to create mathematical reasoning and to decide how to quantify to formulate a conclusion. The one guiding rule for all problems is that the conclusions are to be supported with calculations and concrete answers. To determine who has more marbles in question 1, calculate how many marbles Rudy and Anita have. To decide which batch of cookies has more raisins in question 2, determine the number of raisins in each batch. To conclude who babysits for a greater number of hours in question 3, calculate how long Janet and Evie babysit.

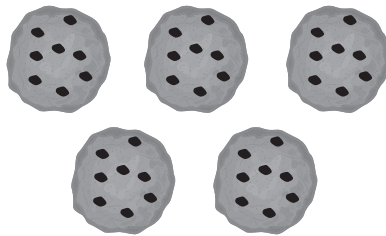
Comparisons can serve as a backdrop for any mathematical topic, so the comparisons are rich in both mathematical content and critical thinking. The method for solving a problem may vary greatly depending on the student's age and mathematical readiness. On the same problem involving 4 groups of 7, some students may draw and count, some may use addition ( $7 + 7 + 7 + 7$ ), while others may use multiplication ( $4 \times 7$ ). No problems assume knowledge of multiplication or division. Each problem is accompanied by one or more hints and a solution. When appropriate, some solutions supplement the explanations with reference to multiplication or division (e.g. noting how  $7 + 7 + 7 + 7$  is the same as  $4 \times 7$ ). However, the hints steer away from more advanced methods of solution. Calculators are not needed, nor should they be allowed, for any of the questions. For some questions the compared quantities are equal rather than one being greater than the other.

1. Rudy has 67 marbles and Anita has 36 marbles. Rudy gives 15 marbles to Anita. Who now has more marbles?

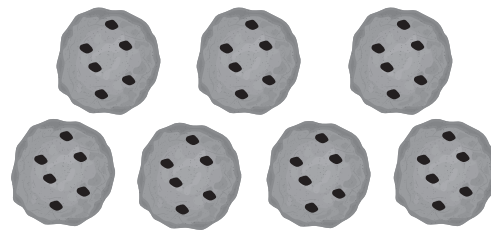


2. Walter and Darla each bake some oatmeal raisin cookies. Whose batch of cookies has a larger total number of raisins?

Walter's batch of cookies



Darla's batch of cookies



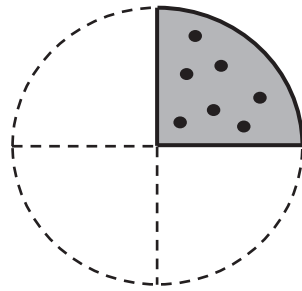
3. Who babysits for a greater number of hours?

Janet earns \$5 for every hour she babysits. Janet earns \$30 babysitting for the Thompson family.

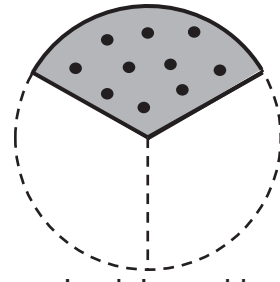


Evie earns \$8 for every hour she babysits. Evie earns \$40 babysitting for the McDonnell family.

37. Two large cookies have chocolate chips spread evenly across the cookie. Jamie slices her cookie into 4 equal pieces and Lucia slices her cookie into 3 equal pieces. For each cookie, the final remaining piece is shown. Whose cookie had more chocolate chips to begin with?



Jamie's cookie



Lucia's cookie

38. Who rides the furthest distance? Who rides the smallest distance?

- a. For each hour of bike riding, Cecilia travels 10 miles. Cecilia rides her bike for 4 hours.



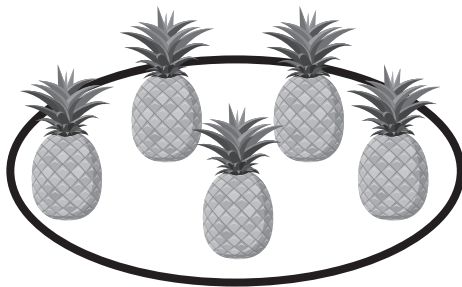
- b. For each hour of bike riding, Richie travels 7 miles. Richie rides his bike for 5 hours.



- c. For each hour of bike riding, Carl travels 12 miles. Carl rides his bike for 3 hours.









39. The plate of pineapples weighs the same as the plate of watermelons. What is the weight of 1 pineapple? (Each pineapple weighs the same.)





Each watermelon weighs 15 pounds.



97. For the summer months of June, July, and August, does Farmer Fletcher sell more pigs or chickens?

month	pigs sold	chickens sold
June		
July		
August		

 = 3 pigs     
  = 5 chickens

98. A box of crayons has 8 crayons in it. Who gets more crayons: Jack or Natasha?

Mrs. Holloway buys 3 boxes of crayons and divides the crayons equally among her 2 children: Jack and Lily.



Mr. Bennett buys 5 boxes of crayons and divides the crayons equally among his 4 children: Natasha, Liam, Ian, and Harper.

99. Which has more wheels?

a. 6 tricycles or 10 bicycles



b. 15 tricycles or 22 bicycles

c. 10 tricycles or 15 bicycles



d. 9 tricycles or 13 bicycles