# **Division Comprehension Check**

1. Use your own words to describe and define division.
2. How can both division and multiplication be used to show groups? Support your answer with an example.
3. Use the repeated addition or the repeated subtraction strategy to solve the following problem: 36 ÷ 6.
4. Use a number line to solve the following problem: 24 ÷ 8.
5. We know multiplication is the same as repeated addition. Explain why division can be considered repeated subtraction.
6. What is the halving strategy? How does it relate to what you already know about doubling?
7. Use the halving strategy to solve the following problem: 32 ÷ 4.
8. Solve 32 ÷ 8 using a strategy of your choice. What strategy did you choose and why?
9. Describe the relationship between division and multiplication.
10. Why is the answer considered “undefined” when we try to divide by zero? (Who’s Who: Brahmagupta, p. 32-33)

# **Division Comprehension Check**

1. Use your own words to describe and define division.
   1. Division is represented by the ÷ symbol and can be used to split numbers into equal sized groups. Division is the same as repeated subtraction, just more efficient. Division can also be thought of as the opposite of multiplication.
2. How can both division and multiplication be used to show groups? Support your answer with an example.
   1. Students’ answers will vary. Example: Both division and multiplication can be used to represent the same grouping story situation. For example, 3 x 3 = 9 represents three groups each containing 3 shells for a total of 9 shells. On the other hand, 9 ÷ 3 = 3 can represent the same situation: 9 shells shared by 3 friends provided 3 shells for each friend.
3. Use the repeated addition or the repeated subtraction strategy to solve the following problem: 36 ÷ 6.
   1. Students may count up or count back by 6 in order to show repeated addition or repeated subtraction to divide. Some students may use number lines or draw pictures of groups to represent this problem. 36 ÷ 6 = 6.
4. Use a number line to solve the following problem: 24 ÷ 8.
   1. Students should draw and label a number line showing 24. They should model jumps of 8 back until they reach zero. Next, students will count the total number of jumps (groups) to find the quotient to 24 ÷ 8 as 3.
5. We know multiplication is the same as repeated addition. Explain why division can be considered repeated subtraction.
   1. Multiplication and division are opposite operations, just as addition and subtraction are. If multiplication is the same as repeated addition, then the opposite is true, too: Division is the same as repeated subtraction. In addition, we can think about division as repeated subtraction because we are taking away (subtracting) the same amount from a total over and over (repeatedly).
6. What is the halving strategy? How does it relate to what you already know about doubling?
   1. Halving and doubling are opposites, just as division and multiplication are opposites! Sometimes using a halving strategy is efficient. In order to divide something by 4, you can cut it in half twice. This is similar to the idea that in order to multiply something by 4, you can double it twice.
7. Use the halving strategy to solve the following problem: 32 ÷ 4.
   1. Students should first halve 32 to get 16 and then halve 16 to get 8, so 32 ÷ 4 = 8.
8. Solve 32 ÷ 8 using a strategy of your choice. What strategy did you choose and why?
   1. Students should use strategies along with pictures, examples, descriptions, etc. to determine 32 ÷ 8 = 4. Students’ strategies will vary but may include counting up or counting back, number lines, or halving.
9. Describe the relationship between division and multiplication.
   1. Division and multiplication can be seen as opposite operations. We use division to split a total and create equal groups, whereas we use multiplication to combine equal groups to find a total. We can use multiplication to double check our division work and vice versa!
10. Why is the answer considered “undefined” when we try to divide by zero? (Who’s Who: Brahmagupta, p. 32-33)
    1. We cannot actually divide anything by zero. Division represents splitting things into groups. If we try to divide by zero, we are really splitting things into no groups – that does not work! In addition, division is the opposite of multiplication. If we were to try to divide 10 by 0, we could ask ourselves 0 x ? = 10, but nothing will make that number sentence true. Because we cannot divide by zero, we say the answer is “undefined.”