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2-3B Lesson Master

Questions on SPUR Objectives
See pages 125–127 for objectives.

USES Objective G

In 1–3, let *n* be the number used to solve the given puzzle. Use algebra to show how the puzzles work.

1. (1) Pick a number. _____

(2) Add 2. _____

(3) Multiply by 15. _____

(4) Subtract 51. _____

(5) Divide by 3. _____

(6) Add 11. _____

(7) Subtract five times your original number. _____

You will always end up with 4.

2. (1) Pick a number. _____

(2) Multiply by 5. _____

(3) Subtract 10. _____

(4) Add 5. _____

(5) Divide by 5. _____

(6) Add 1. _____

You will always end up with your original number.

3. (1) Pick a number. _____

(2) Subtract 12. _____

(3) Multiply by 4. _____

(4) Add 12. _____

(5) Divide by –2. _____

(6) Add three times your original number. _____

You will always end up with 18 more than your original number.

4. Create a number puzzle that ends with –4 times your original number.

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5. Refer to the "Seven is Heaven" puzzle and work the puzzle with a decimal number of your choosing.

In 6 and 7, use the "magic square" shown below. In a magic square, the sums of any row, column, or diagonal are equal. In this magic square, the sums all equal 34.

16	3	2	13
5	10	11	8
9	6	7	12
4	15	14	1

6. Add 10 to every number in the magic square.

   a. Is the result still a magic square?

   b. By how much did the sum of the rows, columns, and diagonals change?

   c. Add k to each of the numbers in the magic square. Is the result still a magic square? Explain your answer using algebra.

7. Multiply every number in the magic square by 6.

   a. Is the result still a magic square?

   b. By how much did the sum of the rows, columns, and diagonals change?

   c. Multiply each number in the magic square by k. Is the result still a magic square? Explain your answer using algebra.