

# Casting Out Nines

## Divisibility by 9

If the divisor is 9 and all of the digits in the dividend add up to 9 or a multiple of 9, there will be no remainder in the quotient.

$$9 \overline{)4,536}$$

The sum of the digits in the dividend,  $4 + 5 + 3 + 6$ , equals 18 and is a multiple of 9.

The quotient is 504 with no remainder.

**Directions:** Complete these problems. Determine if there is a remainder. Compute the remainder if there is one.

1.  $9 \overline{)279}$  R\_\_

2.  $9 \overline{)6,399}$  R\_\_

3.  $9 \overline{)4,581}$  R\_\_

4.  $9 \overline{)9,045}$  R\_\_

5.  $9 \overline{)3,618}$  R\_\_

6.  $9 \overline{)81,189}$  R\_\_

7.  $9 \overline{)7,217}$  R\_\_

8.  $9 \overline{)8,019}$  R\_\_

9.  $9 \overline{)5,455}$  R\_\_

10.  $9 \overline{)4,419}$  R\_\_

11.  $9 \overline{)6,374}$  R\_\_

12.  $9 \overline{)4,566}$  R\_\_

13.  $9 \overline{)9,279}$  R\_\_

14.  $9 \overline{)2,759}$  R\_\_

15.  $9 \overline{)1,881}$  R\_\_

16.  $9 \overline{)9,144}$  R\_\_

17.  $9 \overline{)3,429}$  R\_\_

18.  $9 \overline{)13,329}$  R\_\_

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## Word Problems

**Directions:** Use the system for casting out nines to help you compute these answers.

1. You and your friends found a chest filled with 1,233 pennies. You are going to split the pennies evenly among the 9 of you. How many pennies will each of you receive?  
\_\_\_\_\_ Will any pennies be left over? \_\_\_\_\_
2. Your mother wants you and your friends to paint a fence at your house which has 342 square feet. If the 9 of you divide the job evenly, how many square feet will each of you have to paint? \_\_\_\_\_
3. Your teacher gives 9 boys a huge bag containing 22,143 jellybeans. They decide to divide them evenly before they eat them. You get any leftover jellybeans. How many jellybeans does each boy receive? \_\_\_\_\_ How many leftover jellybeans do you receive? \_\_\_\_\_
4. A family of 9 children has decided to evenly divide the job of painting the outside of their house which covers 33,354 square feet of surface area. How many square feet must each child paint? \_\_\_\_\_
5. Nine girls in your class are going to evenly divide a huge bag containing 34,372 kernels of unpopped popcorn. You get the remainder. How many kernels does each girl have?  
\_\_\_\_\_ How many kernels do you get? \_\_\_\_\_
6. You deal a deck of 52 cards to yourself and 8 friends for a game of War. Any leftover cards will be placed in the center for the first match. How many cards are placed in the center? \_\_\_\_\_ How many cards does each player get? \_\_\_\_\_
7. You win a huge bag of 76,329 marbles in a contest sponsored by Marbles R Us. You split them evenly among 8 of your friends and yourself. How many marbles does each person receive? \_\_\_\_\_
8. You have a gigantic roll of kite string which is 221,814 centimeters long. If you divide the string among 9 of your best friends, how many centimeters will each friend receive?  
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9. How many dollars would each person receive if \$111,111,111 were divided evenly among 9 friends? \_\_\_\_\_