WALCH PUBLISHING

Daily Warm-Ups

ALGEBRA

Hope Martin

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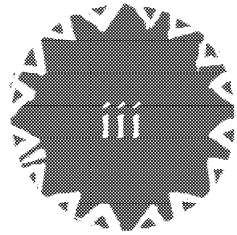

To the Teacher *iv*

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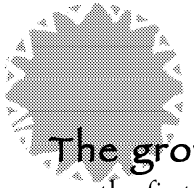
The *Daily Warm-Ups* series is a wonderful way to turn extra classroom minutes into valuable learning time. The 180 quick activities—one for each day of the school year—review, practice, and teach algebra topics. These daily activities may be used at the very beginning of class to get students into learning mode, near the end of class to make good educational use of that transitional time, in the middle of class to shift gears between lessons—or whenever else you have minutes that now go unused. In addition to providing students with fascinating math activities, they are a natural path to other classroom activities involving critical thinking.

As they solve these daily puzzles, your students will be using context clues and will interpret quantitative clues by making connections between abstract rules of number theory and motivating historical events. Each of the puzzles has one extra clue. This clue serves two purposes: the first is to give students a substitute clue (in case they don't understand all of the puzzle-clues). Second, this extra clue encourages students to check their work. It helps them determine if the answer they found makes sense.

Daily Warm-Ups are easy-to-use reproducibles—simply photocopy the day's activity and distribute it. Or make a transparency of the activity and project it on the board. You may want to use the activities for extra-credit points or as a check on critical-thinking skills and problem-solving skills.

However you choose to use them, *Daily Warm-Ups* are a convenient and useful supplement to your regular lesson plans. Make every minute of your class time count!



States of the Union

The growth of the United States took place over the course of 172 years. Delaware was the first of the colonies to join the Union (December 7, 1787) and Hawaii became the 50th state (August 21, 1959).

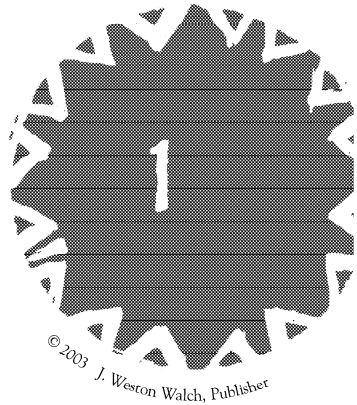
The mathematics puzzles in this chapter help celebrate the nation we are today. When students solve the mathematical clues, they learn the year that each state became a part of the United States of America. Interdisciplinary discussions can encourage students to explore the correlation between the dates colonies and territories became states, life in colonial times, pioneer exploration, and the growth of the Western part of the United States. And, when students investigate mathematics within the framework of history, they view math in context and it begins to make sense.

The Constitution of the United States was adopted by a Convention of States on September 17 of this year. Solve the puzzle to find the year.

- My hundreds and units digits are the fourth prime number.
- The two digit number formed by my thousands and tens digits is equal to x in $\frac{x}{2} = 3^2$.
- The sum of all of my digits is equal to $5^2 - 2$.

What year am I?

_____	_____	_____	_____
Thousands	Hundreds	Tens	Units

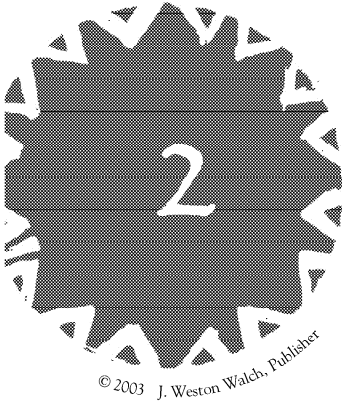


Delaware, Pennsylvania, and New Jersey were the first three colonies to enter the Union. They all became states in the month of December of the same year. Solve this puzzle to learn the year.

- My hundreds and units digits are the same number, and each is the solution to this equation: $\frac{3}{7}x = 3$.
- My tens digit is equal to 2^3.
- The sum of all of my digits is equal to $3^3 - 2^2$.

What year am I?

Thousands	Hundreds	Tens	Units

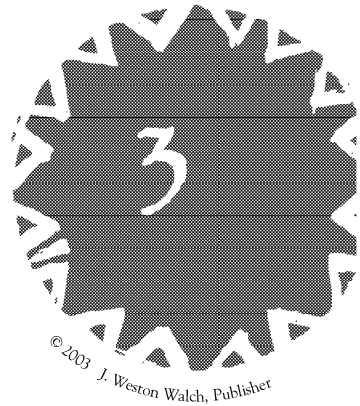


Georgia, Massachusetts, Connecticut, New Hampshire, South Carolina, Virginia, New York, and Maryland all became states in the same year. They became the fourth through the 11th states of our United States. Solve this puzzle to learn the year.

- My tens and units digits are the same. To find them, solve $4(x + 1) = 36$ for x.
- My hundreds digit is the largest single-digit prime.
- The sum of my digits is equal to the value of y in this equation: $2y - 16 = 32$.

What year am I?

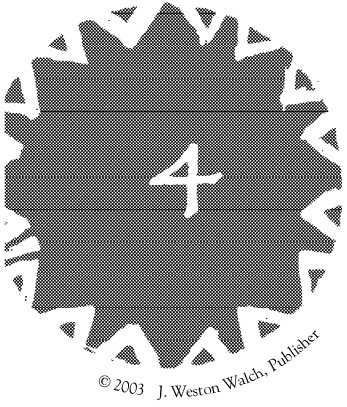
_____	_____	_____	_____
Thousands	Hundreds	Tens	Units



North Carolina became the 12th colony to join the Union. It became a state on November 21 of this year. To learn the year, just solve this puzzle.

- My hundreds, tens, and units digits are consecutive integers with a mean of 8; my hundreds digit is prime.
- My tens digit is equal to the sum of my thousands and hundreds digits.
- The sum of all of my digits is equal to the sum of the first five odd numbers.

What year am I?



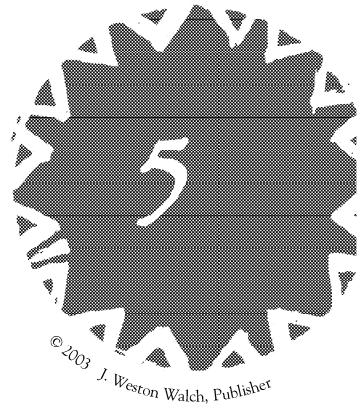
Thousands	Hundreds	Tens	Units

Rhode Island was the last of the 13 original colonies to join when it became a state on May 29. To find the year that Rhode Island became a state, solve this puzzle.

- The two-digit number formed by my tens and units digits is equal to $3^4 + 3^2$.
- My hundreds and tens digits are consecutive odd integers with a sum equal to $|-4 + -12|$
- The sum of all of my digits is the two-digit number formed by my thousands and hundreds digits.

What year am I?

_____	_____	_____	_____
Thousands	Hundreds	Tens	Units

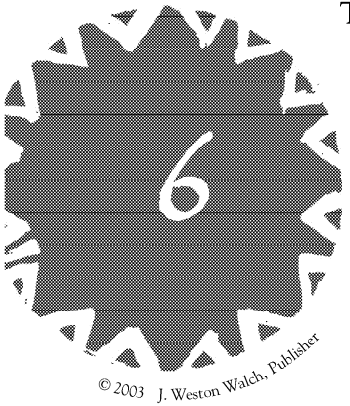


On March 4 of this year, Vermont became the 14th state to join the Union. To learn the year that Vermont became a state, just solve this puzzle.

- My hundreds and tens digits are odd numbers whose sum is 16 and product is 63.
- My units digit is equal to the value of x in this equation: $3x - 4 = -x$.
- The sum of all of my digits is equal to $2\sqrt{81}$.

What year am I?

Thousands	Hundreds	Tens	Units



Kentucky became the 15th state of the Union when it became a state on June 1 of this year. To learn the year Kentucky gained statehood, just solve this puzzle.

- My units digit is the only even prime number.
- My hundreds and tens digits could be the sides of a rectangle with a perimeter of 32 units and an area of 63 square units.
- The sum of all of my digits is the value of x in this equation: $\sqrt{100} + \sqrt{81} = x$.

What year am I?

Thousands	Hundreds	Tens	Units