



Daily Warm-Ups

MATH PROBLEM SOLVING

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Level II



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Working Backward

Sometimes, the information provided in a math problem is so complete that there is only one thing left that you don't know: the answer.

Imagine that you have a bag of 200 marbles. There are 28 green marbles, 21 yellow marbles, 24 blue marbles, 34 red marbles, 15 black marbles, 20 white marbles, and 27 orange marbles. The remaining marbles are purple. How many purple marbles are in the bag?



Writing Two-Step Equations

A two-step equation has a combination of two kinds of operations. Writing two-step equations is an important skill to have when you are solving word problems. You must read the problem carefully in order to correctly represent the information in a mathematical form.

Write a two-step equation for each statement below. Then solve the equation.

1. Five more than four times a number is 53.
2. Half of a number is then added to twenty-one to equal 13.
3. A number is squared and then added to 11 to equal 207.
4. Ninety-nine is the sum of six times a number that is then added to 9.
5. Thirty-eight times a number is added to forty-four to equal 652.
6. A number divided by 15 is added to -68 to get 132.





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Variables on Both Sides

You will often see equations that have variables on both sides of the equal sign. These variables can be combined or eliminated by using the same algebraic properties that you use when solving simpler problems.

Solve each problem below.

1. $3x + 24 = 9x$
2. $9y = 30 + 4y$
3. $3z + 50 = 7z + 10$
4. $19m + 50 = 200 - m$
5. $12r - 34 = 3r - 133$
6. $70 + 6x = 4x + 112$





Dividing by 36

If a number is evenly divisible by both 4 and 9, then the number is evenly divisible by 36. A number is evenly divisible by 4 if the last two digits are 00 or are evenly divisible by 4. A number is evenly divisible by 9 if the sum of the digits in the number is evenly divisible by 9. For example, the digits in 35,548,416 add up to 36, which is evenly divisible by 9. The last two digits, 16, are evenly divisible by 4. Since 35,548,416 is evenly divisible by both 4 and 9, it is also evenly divisible by 36.

Determine which of the following numbers are evenly divisible by 36 using the method described. Do not use a calculator. Write *yes* on the line if the number is evenly divisible by 36 and *no* if it's not.

1. 1,973,675 _____

4. 19,485,148 _____

2. 28,274,836 _____

5. 28,427,544 _____

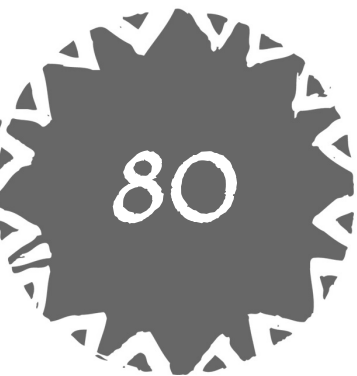
3. 115,758,756 _____

6. 5,322,676 _____



Sketch It Out

You are in charge of buying material for the art on the outside of a new building. One particular wall is 50 feet square and does not have any windows, so you are going to put a large mural on it. The mural will have a triangle that has a base across the entire width of the bottom of the wall and will have a top peak that touches the top center of the wall. You want to paint the area outside the triangle but inside the square with blue paint. How many square feet will you plan on painting blue?



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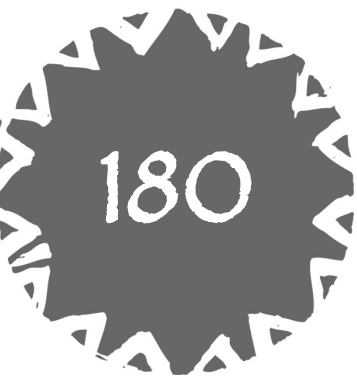
Vegging Out

If you buy a cucumber and a carrot at the store, it will cost you \$1.07. If you buy a carrot and a yam, it will cost you \$1.51. If you buy a cucumber and a yam, it will cost you \$2.02. What is the price for each individual vegetable?



Prime Time

You have a list of prime numbers that are in order from smallest to largest with no numbers skipped. You choose a prime, skip two, choose a second prime, skip two more, and choose a third prime. The product when you multiply your three primes together is 11,063. What are the three primes?



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