

Washington State Math Championship – 2009  
Algebra Grade 5

WASHINGTON STATE  
MATH CHAMPIONSHIP



BLAINE SCHOOL DISTRICT  
ConocoPhillips  
Ferndale Refinery

1. If  $a = 2$ ,  $b = 1$ , and  $c = 0$ , what is the value of  $2a - 3b + 5c$ ? (Note:  $6d$  denotes six times  $d$ )
2. Mary and her brother Max had a swimming contest to see who could swim the most laps in a short amount of time. They found that Mary could swim twice as far as Max. If the total distance they swam was 120 yards, how many yards was Mary able to swim?
3. If you know that the distance from your house to your best friend's house is 3 miles, and you can bike an average of 5 miles per hour, how many minutes would it take to bike from your house to your friend's house at an average speed?
4. Suppose that you were given \$20 and your friend was given \$15 at the beginning of the month. If you spend \$0.75 a day and your friend spends \$0.25 a day, after how many days will you and your friend have the same amount of money?
5. After he got back from the grocery store, Tom noticed that he paid \$2.50 total for five apples, \$0.75 for three oranges, and \$0.35 for one banana. Assuming the prices stayed the same, how much (in dollars) would it cost for him to buy three apples, two oranges, and four bananas?
6. A mysterious animal grows two centimeters a day, but every seventh day (i.e. once a week), instead of growing, the animal shrinks three centimeters. Assuming that the year is *not* a leap year, how many centimeters will the mysterious animal have grown after one full year?
7. Evaluate the following expression:  $4^2 + \left(\frac{3+9}{1 \times 4}\right) \div 2 - 1$ .
8. For a school fair, suppose you had made twelve frames that you were planning on selling for \$4.50 each. If your annoying little sibling decided to "accidentally" break two of the frames, how much money (in dollars) should you charge for each of the remaining frames so that you still earn the same amount of money?
9. If a 24-page-long chapter makes up 12% of a certain book, how many pages in length is the entire book?
10. For what value of  $x$  is the following equation true?  $3 = \frac{x+2}{4}$

Washington State Math Championship – 2009  
Algebra Grade 6

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1. Suppose that you were given \$20 and your friend was given \$15 at the beginning of the month. If you spend \$0.75 a day and your friend spends \$0.25 a day, after how many days will you and your friend have the same amount of money?
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6. If a 24-page-long chapter makes up 12% of a certain book, how many pages in length is the entire book?
7. For what value of  $x$  is the following equation true?  $3 = \frac{x+2}{4}$
8. In her piggy bank, Maggie has \$1.28. If she knows that she has the same number of pennies, nickels, and dimes in the piggy bank, how many total coins does she have in the piggy bank?
9. When Mike was looking at getting official math championship foot warmers, he noticed that they would cost \$12.45 with sales tax. If the foot warmers cost \$11.20 without tax, what is the sales tax rate? **Express your answer to the nearest tenth of a percent.**
10. If the sum of four consecutive odd integers is 456, what is the smallest of those integers?

Washington State Math Championship – 2009  
Algebra Grade 7

WASHINGTON STATE  
MATH CHAMPIONSHIP



BLAINE SCHOOL DISTRICT

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1. Evaluate the following expression:  $4^2 + \left(\frac{3+9}{1 \times 4}\right) \div 2 - 1$ .
2. For a school fair, suppose you had made twelve frames that you were planning on selling for \$4.50 each. If your annoying little sibling decided to “accidentally” break two of the frames, how much money (in dollars) should you charge for each of the remaining frames so that you still earn the same amount of money?
3. If a 24-page-long chapter makes up 12% of a certain book, how many pages in length is the entire book?
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6. When Mike was looking at getting official math championship foot warmers, he noticed that they would cost \$12.45 with sales tax. If the foot warmers cost \$11.20 without tax, what is the sales tax rate? **Express your answer to the nearest tenth of a percent.**
7. If the sum of four consecutive odd integers is 456, what is the smallest of those integers?
8. What is the equation of the line that passes through the points with coordinates (2, 8) and (3, 10)? **Express your answer in the form:  $y = mx + b$ .**
9. In a school of two hundred students, the ratio of students who like mathematics to those who do not like mathematics is 5:3. How many students do not like mathematics?
10. Solve the following equation for  $x$ :  $|x - 2| + 4 = 12$ .

Washington State Math Championship – 2009  
Algebra Grade 8

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MATH CHAMPIONSHIP



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1. For what value of  $x$  is the following equation true?  $3 = \frac{x+2}{4}$
2. In her piggy bank, Maggie has \$1.28. If she knows that she has the same number of pennies, nickels, and dimes in the piggy bank, how many total coins does she have in the piggy bank?
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4. If the sum of four consecutive odd integers is 456, what is the smallest of those integers?
5. What is the equation of the line that passes through the points with coordinates (2, 8) and (3, 10)? **Express your answer in the form:  $y = mx + b$ .**
6. In a school of two hundred students, the ratio of students who like mathematics to those who do not like mathematics is 5:3. How many students do not like mathematics?
7. Solve the following equation for  $x$ :  $|x - 2| + 4 = 12$ .
8. Express the number  $288_{\text{nine}}$  as a base ten number.
9. The sum of the first five hundred non-zero square numbers is 41,791,750. What is the sum of the squares of each of the first five hundred even numbers?
10. At a local driving range, they have two kinds of buckets – small and large. After playing around, you found that if you fill three large buckets with golf balls and then take eight small buckets full of golf balls away from that, you end up with 220 golf balls. On the other hand, if you start with one large bucket of golf balls and add four small buckets of golf balls, you end up with 140 golf balls. How many golf balls would you have all together if you had one small and one large bucket of golf balls?