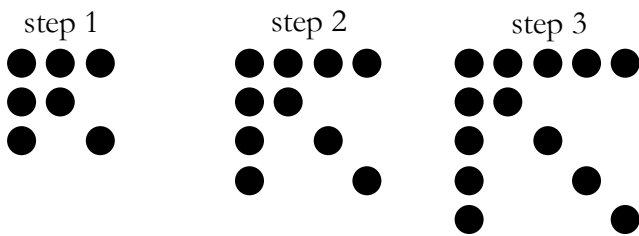


Whatcom County Math Championship – 2014

Algebra – 4th Grade

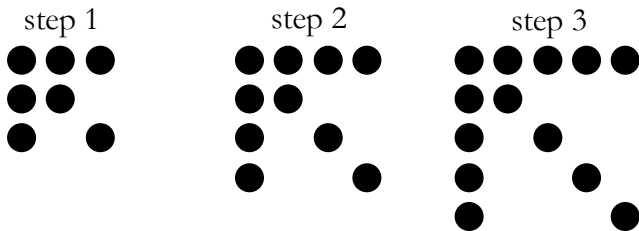
1. What is $6 \times 5 - 4 + 3 \times 2 + 1$?
2. Mr. Pepper has 11 more than twice as many penguins as he had last year. If he has 97 penguins now, how many did he have last year?
3. What is the value of $123^2 - 117^2$?
4. What is the sum of the whole number factors of 96?
5. Write $\frac{1}{1 + \frac{2}{1 + \frac{3}{4}}}$ as a simplified and reduced fraction.
6. Let $\nabla m = 4m + 3$. What is $\nabla\nabla\nabla\nabla\nabla 2$?
7. If 4 splishes equals 3 splashes, and 2 splashes equal 5 splooshes, how many splooshes does 24 splishes equal?
8. What is the solution to the equation $6(a - 8) = a(7 - 4)$?
9. What is $1 + 2 + 3 + \dots + 78 + 79 + 80$?
10. How many circles will there be at step 20?



Whatcom County Math Championship – 2014

Algebra – 5th Grade

1. What is the sum of the whole number factors of 96?
2. Write $\frac{1}{1 + \frac{2}{1 + \frac{3}{4}}}$ as a simplified and reduced fraction.
3. Let $\nabla m = 4m + 3$. What is $\nabla\nabla\nabla\nabla\nabla 2$?
4. If 4 splishes equals 3 splashes, and 2 splashes equal 5 splooshes, how many splooshes does 24 splishes equal?
5. What is the solution to the equation $6(a - 8) = a(7 - 4)$?
6. What is $1 + 2 + 3 + \dots + 78 + 79 + 80$?
7. How many circles will there be at step 20?

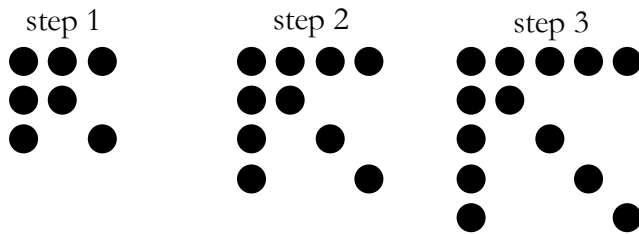


8. When a positive two – digit number has its digits reversed to form a new two – digit number, the sum of the two is 154. What is the largest possible value of the original number?
9. If Ava can swim 200 meters in 2 minutes and 20 seconds, how long will it take her to swim 1300 meters, at the same rate? **Give your answer in minutes and seconds.**
10. The digital root of a number is found by adding all of the digits of a number, then repeating the process until you get a single digit number (for example, the digital root of 3851 is $3+8+5+1 = 17$, $1 + 7 = 8$). What is the digital root of 9^{2014} ?

Whatcom County Math Championship – 2014

Algebra – 6th Grade

1. If 4 splishes equals 3 splashes, and 2 splashes equal 5 splooshes, how many splooshes does 24 splishes equal?
2. What is the solution to the equation $6(a - 8) = a(7 - 4)$?
3. What is $1 + 2 + 3 + \dots + 78 + 79 + 80$?
4. How many circles will there be at step 20?

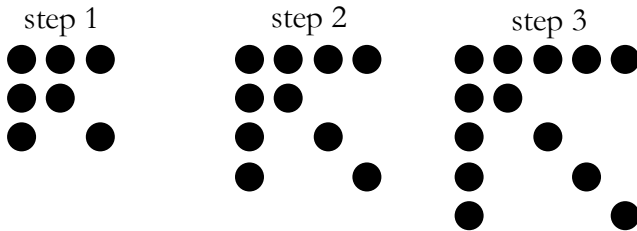


5. When a positive two – digit number has its digits reversed to form a new two – digit number, the sum of the two is 154. What is the largest possible value of the original number?
6. If Ava can swim 200 meters in 2 minutes and 20 seconds, how long will it take her to swim 1300 meters, at the same rate? **Give your answer in minutes and seconds.**
7. The digital root of a number is found by adding all of the digits of a number, then repeating the process until you get a single digit number (for example, the digital root of 3851 is $3+8+5+1 = 17$, $1 + 7 = 8$). What is the digital root of 9^{2014} ?
8. The number n satisfies the equation $\sqrt{48} + \sqrt{108} = \sqrt{n}$. What is n ?
9. If the sum of two numbers is 43 and the product is 432, what is the larger of the two numbers?
10. Write $\frac{1}{1 + \frac{2}{1 + \frac{3}{1 + \frac{4}{1 + \frac{5}{1}}}}}$ as a simplified and reduced fraction.

Whatcom County Math Championship – 2014

Algebra – 7th and 8th Grade

1. How many circles will there be at step 20?



2. When a positive two – digit number has its digits reversed to form a new two – digit number, the sum of the two is 154. What is the largest possible value of the original number?

3. If Ava can swim 200 meters in 2 minutes and 20 seconds, how long will it take her to swim 1300 meters, at the same rate? **Give your answer in minutes and seconds.**

4. The digital root of a number is found by adding all of the digits of a number, then repeating the process until you get a single digit number (for example, the digital root of 3851 is $3+8+5+1 = 17$, $1 + 7 = 8$). What is the digital root of 9^{2014} ?

5. The number n satisfies the equation $\sqrt{48} + \sqrt{108} = \sqrt{n}$. What is n ?

6. If the sum of two numbers is 43 and the product is 432, what is the larger of the two numbers?

7. Write $\frac{1}{1 + \frac{2}{1 + \frac{3}{1 + \frac{4}{1 + \frac{5}{1}}$ as a simplified and reduced fraction.

8. Let $\nabla m = 4m + 3$. Solve for x : $\nabla\nabla\nabla\nabla\nabla x = 10239$

9. A geometric sequence increases by multiplying by the same ratio each time. What is the **first** missing term in this geometric sequence: 96, _____, _____, _____, _____, 729.

10. The line m goes through the points (4, 21) and (28, 3), while the line n goes through the point (16, 27) and has a slope of 3. Lines m and n intersect at the point P. Give the coordinates (x, y) for P.