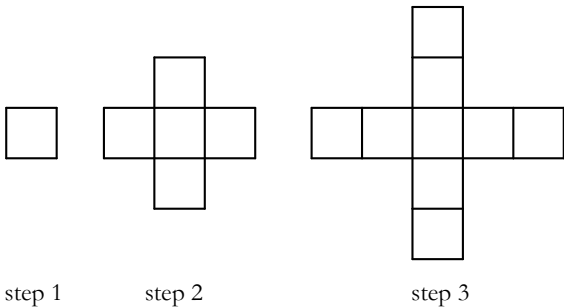


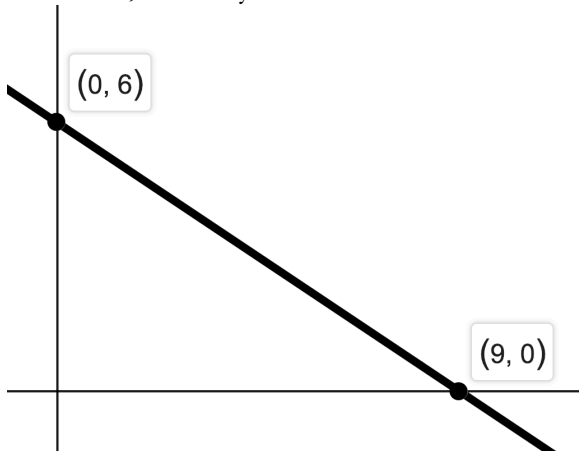
Whatcom County Math Championship – 2019

Potpourri – 4th Grade

1. Ahmed has \$4.50 in quarters and dimes. How many different combinations of quarters and dimes could Ahmed have if he has at least one quarter and one dime?
2. How many numbers between 1 and 1000 have both a perfect square root and a perfect cube root?
3. The number of 5th-graders who took the math championship test was 10 less than half the 4th-graders. The number of 6th-graders was 10 less than half the 5th-graders, and the number of 7th-graders and 8th-graders followed the same pattern. If 12 8th-graders took the math championship test, how many 4th-graders did?
4. How many positive 2 digit numbers exist whose digits increase when read from left to right (like 23 or 79)?
5. Astrid and Zephir were playing tic-tac-toe on a 4 by 4 square board. How many different ways are there to get three squares in a row (horizontally, vertically, diagonally)?
6. A square piece of origami paper has an area of 144 cm^2 . It is folded in half lengthwise, then folded again to make a smaller square, then folded a third time lengthwise. What is the perimeter of the resulting rectangle?
7. In one day, how many times is the angle between the hour hand and the minute hand 180 degrees?
8. If the pattern below continues, at what step will the perimeter be 132?



9. If $x = 3$, what is y ?

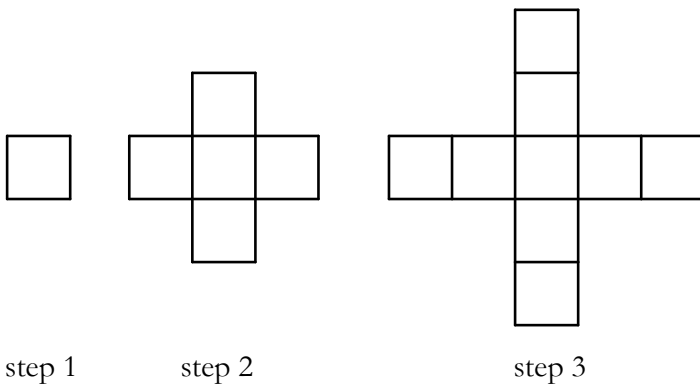


10. There are a number of almonds in a bowl. If you eat them 2 at a time, 1 almond will be left. If you eat them 3 at a time, 2 almonds will be left. If you eat them 4 at a time, 3 almonds will be left. If you eat them 5 at a time, 4 almonds will be left. If you eat them 6 at a time, 5 almonds will be left. If you eat them 7 at a time, no almonds will be left. What is the smallest number of almonds that could be in the bowl?

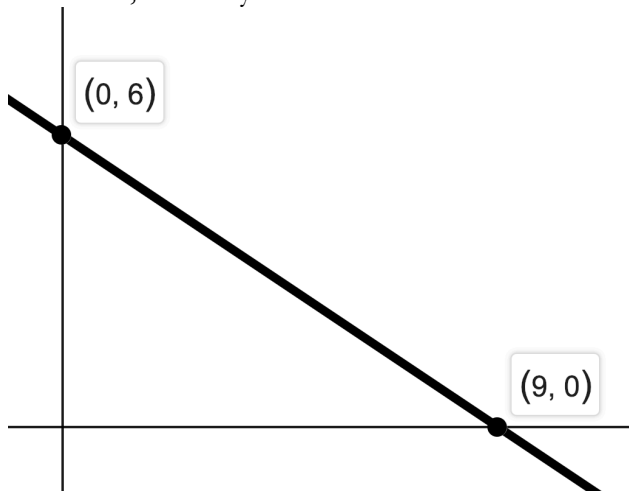
Whatcom County Math Championship – 2019

Potpourri – 5th Grade

1. How many positive 2 digit numbers exist whose digits increase when read from left to right (like 23 or 79)?
2. Astrid and Zephir were playing tic-tac-toe on a 4 by 4 square board. How many different ways are there to get three squares in a row (horizontally, vertically, diagonally)?
3. A square piece of origami paper has an area of 144 cm^2 . It is folded in half lengthwise, then folded again to make a smaller square, then folded a third time lengthwise. What is the perimeter of the resulting rectangle?
4. In one day, how many times is the angle between the hour hand and the minute hand 180 degrees?
5. If the pattern below continues, at what step will the perimeter be 132?



6. If $x = 3$, what is y ?



7. There are a number of almonds in a bowl. If you eat them 2 at a time, 1 almond will be left. If you eat them 3 at a time, 2 almonds will be left. If you eat them 4 at a time, 3 almonds will be left. If you eat them 5 at a time, 4 almonds will be left. If you eat them 6 at a time, 5 almonds will be left. If you eat them 7 at a time, no almonds will be left. What is the smallest number of almonds that could be in the bowl?

8. Below, x and y and z are different digits. What is $x + y + z$?

$$\begin{array}{r} xyz \\ xyz \\ + \underline{xyz} \\ \hline zzz \end{array}$$

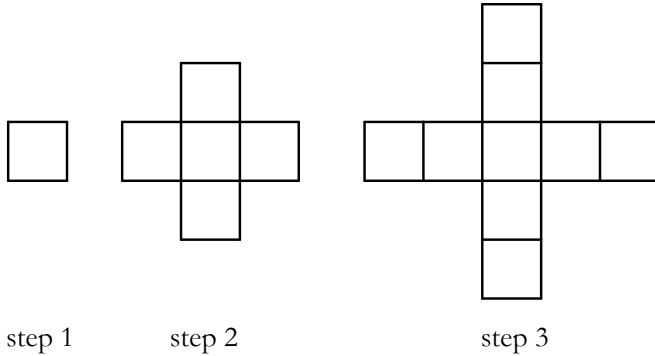
9. What is the area in the first quadrant between the graph of $y = -|x - 4| + 6$ and the x - and y - axes?

10. The ratio of blue marbles to red marbles in a bag is 1:2. When 6 more blue marbles are added to the bag, the new ratio 3:5. How many blue marbles are there in the bag originally?

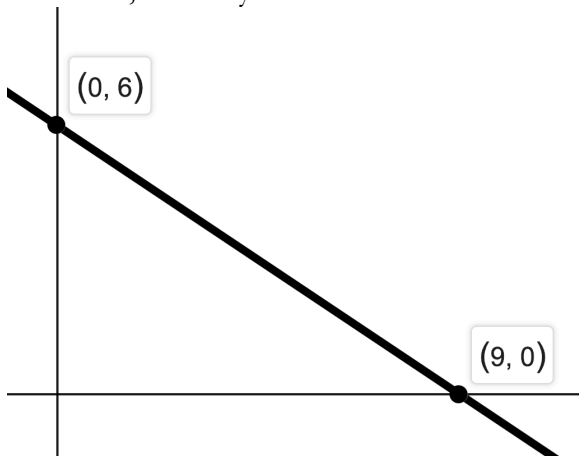
Whatcom County Math Championship – 2019

Potpourri – 6th Grade

- In one day, how many times is the angle between the hour hand and the minute hand 180 degrees?
- If the pattern below continues, at what step will the perimeter be 132?



- If $x = 3$, what is y ?

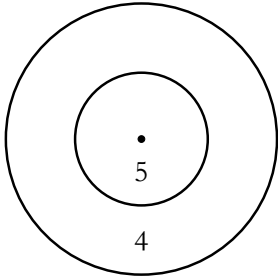


- There are a number of almonds in a bowl. If you eat them 2 at a time, 1 almond will be left. If you eat them 3 at a time, 2 almonds will be left. If you eat them 4 at a time, 3 almonds will be left. If you eat them 5 at a time, 4 almonds will be left. If you eat them 6 at a time, 5 almonds will be left. If you eat them 7 at a time, no almonds will be left. What is the smallest number of almonds that could be in the bowl?
- Below, x and y and z are different digits. What is $x + y + z$?

$$\begin{array}{r}
 xyz \\
 xyz \\
 + xyz \\
 \hline
 zzz
 \end{array}$$
- What is the area in the first quadrant between the graph of $y = -|x - 4| + 6$ and the x - and y -axes?

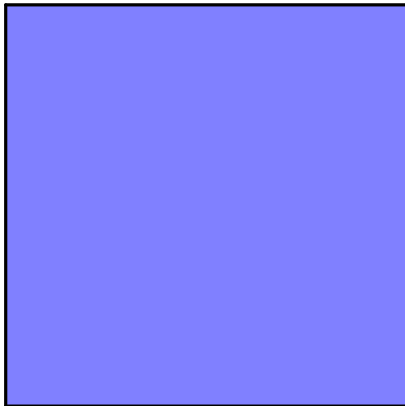
7. The ratio of blue marbles to red marbles in a bag is 1:2. When 6 more blue marbles are added to the bag, the new ratio 3:5. How many blue marbles are there in the bag originally?

8. Here is a dartboard; you get 5 points for the inner target, 4 for the outer. You have an unlimited number of darts to throw. Every dart you throw will hit the board. What is the highest score you **cannot** get under 100?

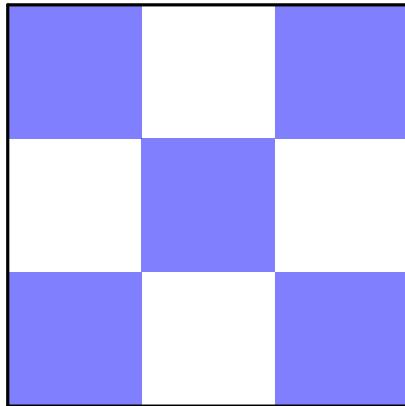


9. How many positive 3 digit numbers exist whose digits increase when read from left to right (like 234 or 479)?

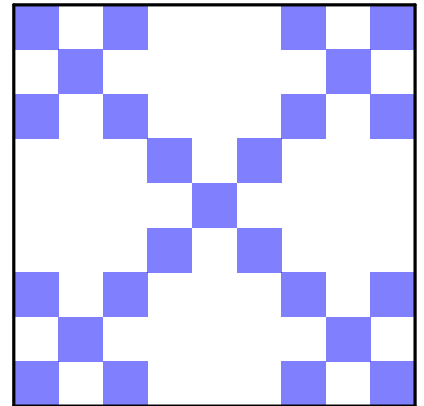
10. The shaded area in step 1 below is 1. If the pattern continues, at what step will the shaded area be less than 0.001?



step 1



step 2



step 3

Whatcom County Math Championship – 2019

Potpourri – 7th + 8th Grade

1. There are a number of almonds in a bowl. If you eat them 2 at a time, 1 almond will be left. If you eat them 3 at a time, 2 almonds will be left. If you eat them 4 at a time, 3 almonds will be left. If you eat them 5 at a time, 4 almonds will be left. If you eat them 6 at a time, 5 almonds will be left. If you eat them 7 at a time, no almonds will be left. What is the smallest number of almonds that could be in the bowl?

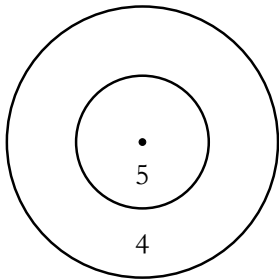
2. Below, x and y and z are different digits. What is $x + y + z$?

$$\begin{array}{r} xyz \\ xyz \\ + \underline{xyz} \\ zzz \end{array}$$

3. What is the area in the first quadrant between the graph of $y = -|x - 4| + 6$ and the x – and y – axes?

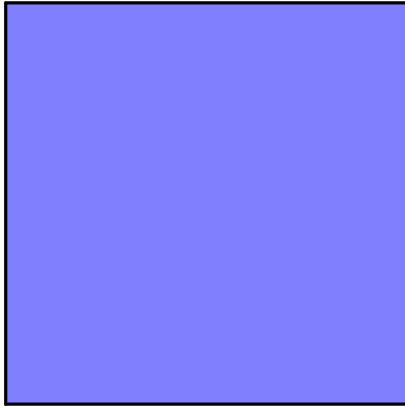
4. The ratio of blue marbles to red marbles in a bag is 1:2. When 6 more blue marbles are added to the bag, the new ratio 3:5. How many blue marbles are there in the bag originally?

5. Here is a dartboard; you get 5 points for the inner target, 4 for the outer. You have an unlimited number of darts to throw. Every dart you throw will hit the board. What is the highest score you **cannot** get under 100?

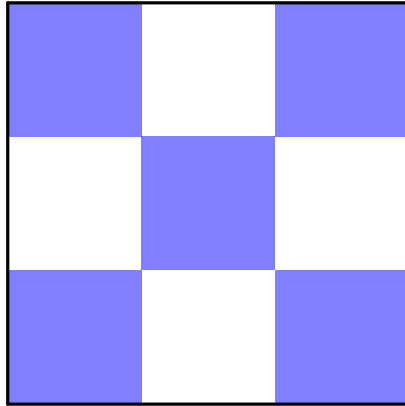


6. How many positive 3 digit numbers exist whose digits increase when read from left to right (like 234 or 479)?

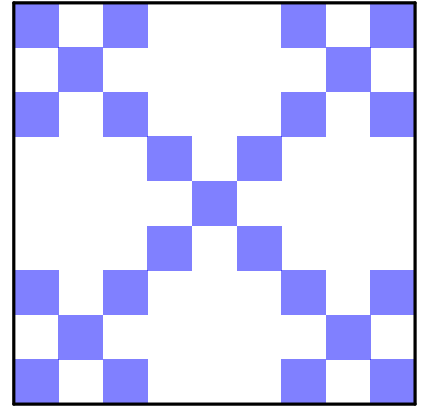
7. The shaded area in step 1 below is 1. If the pattern continues, at what step will the shaded area be less than 0.001?



step 1

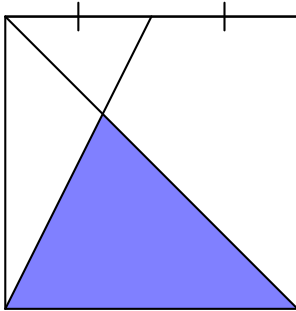


step 2



step 3

8. What fraction of the square is shaded? **Write the answer as a reduced fraction.**



9. In one day, how many times is the angle between the hour hand and the minute hand 90 degrees?

10. If the tip of the minute hand of a clock at 12 noon is at the point $(0, 6)$, and the tip is at (a, b) at 2 o'clock, what is $a + b$? **Round your answer to the nearest tenth.**