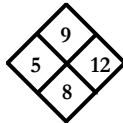
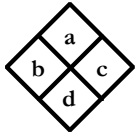


# Whatcom County Math Championship – 2013

## Individual – 4<sup>th</sup> Grade

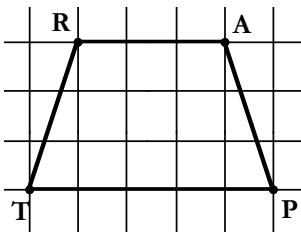
1. Evaluate  $231/3$ .
2. Calculate the following:  $4 \times 5 + 6 \times 7$
3. If a cube has faces with areas 36, what is the volume of the cube?
4. If Sonja has four coins, what is the third smallest amount of money, in cents, she could have?



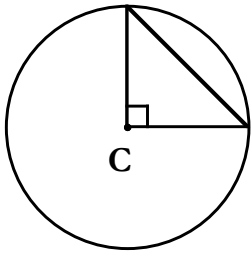
5. If  $\begin{matrix} a \\ b \end{matrix} \begin{matrix} c \\ d \end{matrix} = ad - bc$ , what is  $\begin{matrix} 9 \\ 5 \end{matrix} \begin{matrix} 12 \\ 8 \end{matrix}$  ?

6. What is the remainder when 348 is divided by 13?
7. What is the sum of the first ten positive numbers?
8. What is the area, in square inches, of a circle with a diameter of 10?
9. What percent of 24 is 8?
10. Write 1.24 as a reduced fraction.
11. What is the least common multiple of 3, 12 and 21?
12. What is the reciprocal of  $\frac{3}{4} + \frac{4}{5}$ ? **Write your answer as a reduced fraction.**
13. A bag has 6 green marbles and 9 red marbles. When a single marble is drawn at random, what is the probability that the marble is red? **Write your answer as a reduced fraction.**
14. Evaluate  $4^3$ .
15. If Melody rolls two six – sided dice and adds the results, what is the probability she will roll a 10 or higher? **Write your answer as a reduced fraction.**
16. What is  $\frac{1}{2}$  of  $\frac{2}{3}$  of  $\frac{3}{4}$  of  $\frac{4}{5}$  of 100?

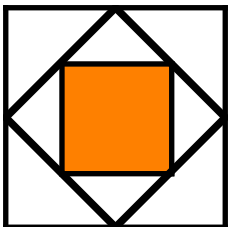
17. What is the area of trapezoid TRAP?



18. How many ways can you make twenty cents?
19. Starting at noon, the minute hand and the hour hand are in the same place and at midnight, they will be again. Between noon and midnight, how many times have the minute and hour hands been in the same place?
20. Emma's alarm clock goes off at 5:45 AM, and she hits the snooze button. The alarm will go off again in 12 minutes, and she hits it again. It will go off again in 11 minutes. The alarm will continue to go off in shorter periods, until, when the period between alarms is 0 minutes, at which point a fog horn will sound and Emma will have to get up. At what time does the fog horn go off?
21. What is the prime factorization of 96?
22. What is the next term in this sequence: 4, 12, 36, \_\_\_\_\_
23. If the area of the circle with center C is  $36\pi$ , what is the area of the right triangle?



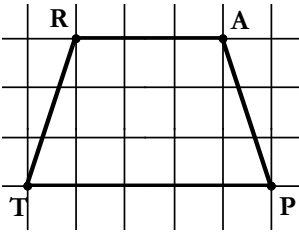
24. What is  $\frac{4}{3}$  minus its reciprocal? **Write your answer as a fraction in reduced form.**
25. What is the largest area you can make with a rectangle that has a perimeter of 100?
26. If you count backwards from 100,000 by sevens, what is the first three digit number you will say?
27. How many one – thirds are there in nine and one – third?
28. Nine people are in a room, and each shakes the hands of everyone else one time. How many total handshakes are made?
29. What is the probability a randomly thrown dart will hit the dark square target in the middle? **Write your answer as a reduced fraction.**



30. 36% of what number is 18?

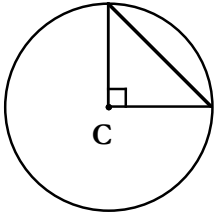
# Whatcom County Math Championship – 2013

## Individual – 5<sup>th</sup> Grade

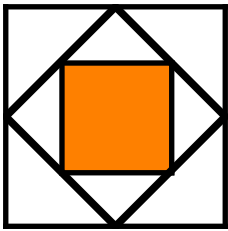
1. What is the remainder when 348 is divided by 13?
2. What is the sum of the first ten positive numbers?
3. What is the area, in square inches, of a circle with a diameter of 10?
4. What percent of 24 is 8?
5. Write 1.24 as a reduced fraction.
6. What is the least common multiple of 3, 12 and 21?
7. What is the reciprocal of  $\frac{3}{4} + \frac{4}{5}$ ? **Write your answer as a reduced fraction.**
8. A bag has 6 green marbles and 9 red marbles. When a single marble is drawn at random, what is the probability that the marble is red? **Write your answer as a reduced fraction.**
9. Evaluate  $4^3$ .
10. If Melody rolls two six – sided dice and adds the results, what is the probability she will roll a 10 or higher? **Write your answer as a reduced fraction.**
11. What is  $\frac{1}{2}$  of  $\frac{2}{3}$  of  $\frac{3}{4}$  of  $\frac{4}{5}$  of 100?
12. What is the area of trapezoid TRAP?  


The diagram shows a trapezoid TRAP on a grid. The bottom base TP is 5 units long, and the top base RA is 3 units long. The height is 2 units.
13. How many ways can you make twenty cents?
14. Starting at noon, the minute hand and the hour hand are in the same place and at midnight, they will be again. Between noon and midnight, how many times have the minute and hour hands been in the same place?
15. Emma's alarm clock goes off at 5:45 AM, and she hits the snooze button. The alarm will go off again in 12 minutes, and she hits it again. It will go off again in 11 minutes. The alarm will continue to go off in shorter periods, until, when the period between alarms is 0 minutes, at which point a fog horn will sound and Emma will have to get up. At what time does the fog horn go off?
16. What is the prime factorization of 96?

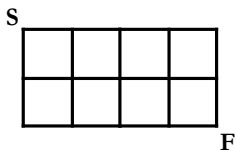
17. What is the next term in this sequence: 4, 12, 36, \_\_\_\_\_
18. If the area of the circle with center C is  $36\pi$ , what is the area of the right triangle?



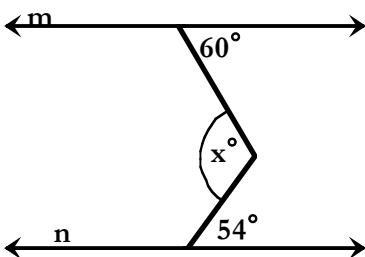
19. What is  $\frac{4}{3}$  minus its reciprocal? **Write your answer as a fraction in reduced form.**
20. What is the largest area you can make with a rectangle that has a perimeter of 100?
21. If you count backwards from 100,000 by sevens, what is the first three digit number you will say?
22. How many one – thirds are there in nine and one – third?
23. Nine people are in a room, and each shakes the hands of everyone else one time. How many total handshakes are made?
24. What is the probability a randomly thrown dart will hit the dark square target in the middle? **Write your answer as a reduced fraction.**



25. 36% of what number is 18?
26. How many paths are there from S to F, traveling only down and right?



27. How many square numbers are there that have four digits?
28. If  $b_n$  is an arithmetic sequence, and  $b_1 = 6$  and  $b_5 = 34$ , what is  $b_8$ ?
29. Lines m and n are parallel. How big is angle x?



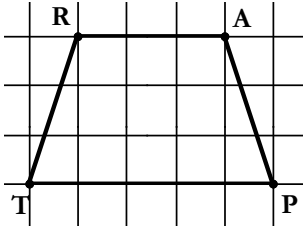
30. If n is divided by 7, the remainder is 5. What is the remainder of  $2n$  divided by 7?

# Whatcom County Math Championship – 2013

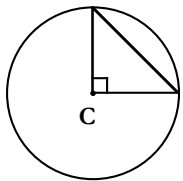
## Individual – 6<sup>th</sup> Grade

1. What is the least common multiple of 3, 12 and 21?
2. What is the reciprocal of  $\frac{3}{4} + \frac{4}{5}$ ? **Write your answer as a reduced fraction.**
3. A bag has 6 green marbles and 9 red marbles. When a single marble is drawn at random, what is the probability that the marble is red? **Write your answer as a reduced fraction.**
4. Evaluate  $4^3$ .
5. If Melody rolls two six – sided dice and adds the results, what is the probability she will roll a 10 or higher? **Write your answer as a reduced fraction.**
6. What is  $\frac{1}{2}$  of  $\frac{2}{3}$  of  $\frac{3}{4}$  of  $\frac{4}{5}$  of 100?

7. What is the area of trapezoid TRAP?

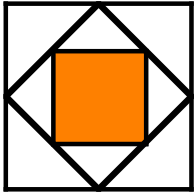


8. How many ways can you make twenty cents?
9. Starting at noon, the minute hand and the hour hand are in the same place and at midnight, they will be again. Between noon and midnight, how many times have the minute and hour hands been in the same place?
10. Emma's alarm clock goes off at 5:45 AM, and she hits the snooze button. The alarm will go off again in 12 minutes, and she hits it again. It will go off again in 11 minutes. The alarm will continue to go off in shorter periods, until, when the period between alarms is 0 minutes, at which point a fog horn will sound and Emma will have to get up. At what time does the fog horn go off?
11. What is the prime factorization of 96?
12. What is the next term in this sequence: 4, 12, 36, \_\_\_\_\_
13. If the area of the circle with center C is  $36\pi$ , what is the area of the right triangle?

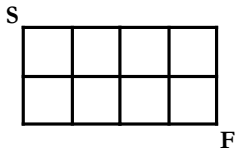


14. What is  $\frac{4}{3}$  minus its reciprocal? **Write your answer as a fraction in reduced form.**
15. What is the largest area you can make with a rectangle that has a perimeter of 100?

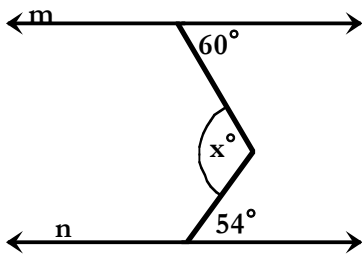
16. If you count backwards from 100,000 by sevens, what is the first three digit number you will say?
17. How many one – thirds are there in nine and one – third?
18. Nine people are in a room, and each shakes the hands of everyone else one time. How many total handshakes are made?
19. What is the probability a randomly thrown dart will hit the dark square target in the middle? **Write your answer as a reduced fraction.**



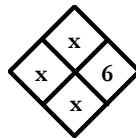
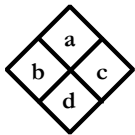
20. 36% of what number is 18?
21. How many paths are there from S to F, traveling only down and right?



22. How many square numbers are there that have four digits?
23. If  $b_n$  is an arithmetic sequence, and  $b_1 = 6$  and  $b_5 = 34$ , what is  $b_8$ ?
24. Lines  $m$  and  $n$  are parallel. How big is angle  $x$ ?

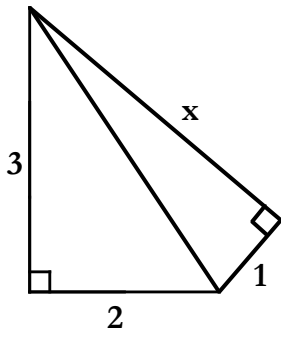


25. If  $n$  is divided by 7, the remainder is 5. What is the remainder of  $2n$  divided by 7?



26. If  $\begin{matrix} a & \\ b & c \\ & d \end{matrix} = ad - bc$ , what values for  $x$  will make  $\begin{matrix} x & \\ x & 6 \\ & x \end{matrix} = 72$ ?
27. The sum of 3 consecutive odd numbers is 2013. What is the sum of all the digits of those numbers?
28. What are the coordinates of the point where the lines  $y = 6x - 15$  and  $y = x + 60$  meet? **Express your answer in the form  $(a, b)$ .**

29. Both triangles are right. Solve for  $x$ , round your answer to the nearest hundredth.



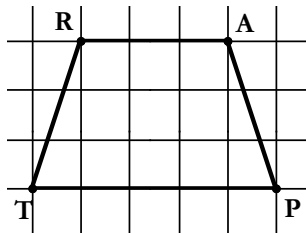
30. If a sequence starts with  $a_1 = 5$ ,  $a_2 = 20$ ,  $a_3 = 80 \dots$ , what is the value of the ratio  $\frac{a_{101}}{a_{100}}$  ?

# Whatcom County Math Championship – 2013

## Individual – 7<sup>th</sup> + 8<sup>th</sup> Grade

1. What is  $\frac{1}{2}$  of  $\frac{2}{3}$  of  $\frac{3}{4}$  of  $\frac{4}{5}$  of 100?

2. What is the area of trapezoid TRAP?



3. How many ways can you make twenty cents?

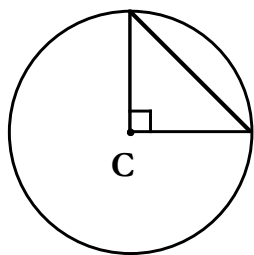
4. Starting at noon, the minute hand and the hour hand are in the same place and at midnight, they will be again. Between noon and midnight, how many times have the minute and hour hands been in the same place?

5. Emma's alarm clock goes off at 5:45 AM, and she hits the snooze button. The alarm will go off again in 12 minutes, and she hits it again. It will go off again in 11 minutes. The alarm will continue to go off in shorter periods, until, when the period between alarms is 0 minutes, at which point a fog horn will sound and Emma will have to get up. At what time does the fog horn go off?

6. What is the prime factorization of 96?

7. What is the next term in this sequence: 4, 12, 36, \_\_\_\_\_

8. If the area of the circle with center C is  $36\pi$ , what is the area of the right triangle?



9. What is  $\frac{4}{3}$  minus its reciprocal? **Write your answer as a fraction in reduced form.**

10. What is the largest area you can make with a rectangle that has a perimeter of 100?

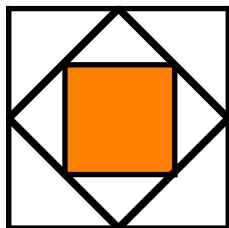
11. If you count backwards from 100,000 by sevens, what is the first three digit number you will say?

12. How many one – thirds are there in nine and one – third?

13. Nine people are in a room, and each shakes the hands of everyone else one time. How many total handshakes are made?

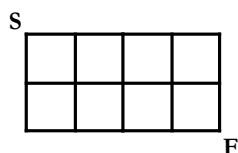


14. What is the probability a randomly thrown dart will hit the dark square target in the middle? **Write your answer as a reduced fraction.**



15. 36% of what number is 18?

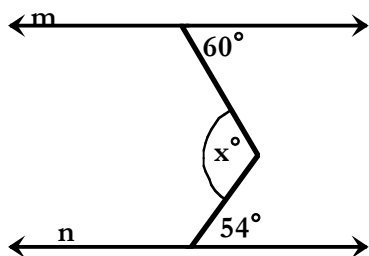
16. How many paths are there from S to F, traveling only down and right?



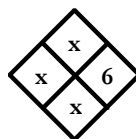
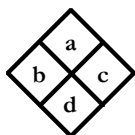
17. How many square numbers are there that have four digits?

18. If  $b_n$  is an arithmetic sequence, and  $b_1 = 6$  and  $b_5 = 34$ , what is  $b_8$ ?

19. Lines  $m$  and  $n$  are parallel. How big is angle  $x$ ?



20. If  $n$  is divided by 7, the remainder is 5. What is the remainder of  $2n$  divided by 7?

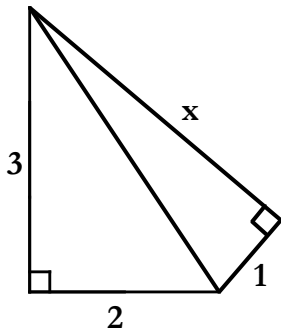


21. If  $\begin{matrix} a & \\ b & c \\ & d \end{matrix} = ad - bc$ , what values for  $x$  will make  $\begin{matrix} x & \\ x & 6 \\ & x \end{matrix} = 72$ ?

22. The sum of 3 consecutive odd numbers is 2013. What is the sum of all the digits of those numbers?

23. What are the coordinates of the point where the lines  $y = 6x - 15$  and  $y = x + 60$  meet? **Express your answer in the form  $(a, b)$ .**

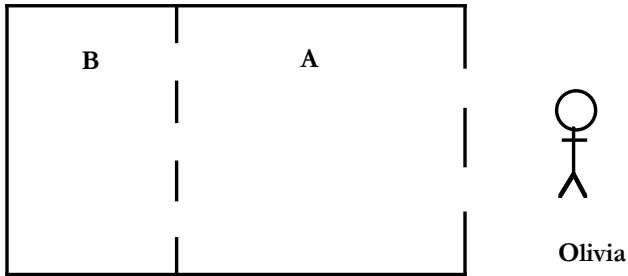
24. Both triangles are right. Solve for  $x$ , round your answer to the nearest hundredth.



25. If a sequence starts with  $a_1 = 5$ ,  $a_2 = 20$ ,  $a_3 = 80 \dots$ , what is the value of the ratio  $\frac{a_{101}}{a_{100}}$ ?

26. What is the remainder when 54,904,287,720,314,118,202 is divided by 9?

27. Olivia needs to get a book she left in room B, but she has to go through room A first. There are two doors into room A and three into room B. How many different ways can she go to room B and back out without going through the same door twice?



28. The least common multiple of 60 and  $n$  is 180. What is the least possible integer value of  $n$ ?

29. The Topwise school store sells 8 pencils and 5 notebooks for \$12.67. It also sells 3 pencils and 2 notebooks for \$4.91. How much do 10 pencils and 8 notebooks cost?

30. What is the greatest possible area of a rectangle whose diagonal is 12?