# RIT Regional Math Competition Sprint Round <br> Problems 1-30 

First Name: $\qquad$ Last Name: $\qquad$

## DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

This section of the competition consists of 30 problems. You will have 40 minutes to complete all the problems. You are allowed to use a basic calculator. You are not allowed to use books or other aids during this round. Calculations may be done on scratch paper. All answers must be complete and legible. If the answer is expressed in common fraction, reduce the fraction to lowest terms. Record your final answer in the designated space on the problem sheet. The required unit for the answer is included. If you complete the problems before time is called, use the time remaining to check your answers.

| Total Correct | Scorer's Initials |
| :--- | :--- |
|  |  |
|  |  |

1. What is the least common multiple of 8 and 12 ?
2. What is the percent increase if Krystal's salary is raised from $\$ 2,400$ per month to $\$ 3,000$ per month?
3. Divide: $\frac{1}{4} \div 7$. Write your answer as a common fraction.
4. Let $a=7.4, b=-1.23$, and $c=3.2$.

Evaluate $a+b+c$ to the nearest tenth.
5. A manufacturer needs to ship 1,200 new calculators to the store. If each box can hold 100 calculators, how many boxes will the manufacturer need?
6. If a line segment measuring 78 centimeters is bisected to form two new line segments, what is the measure of each new line segment?
7. What is the ratio of rectangles to triangles?

Write your answer as a common fraction.

8. Evaluate the expression for $x=-4$.

$$
|x+1|+8
$$

9. What is the total apple pie sales in dollars?
10. $\$$ $\qquad$
11. Bree jarred 12 liters of peanut butter in 3 days.

How much peanut butter did Bree jar if she spent 4 days making peanut butter?
11. Aminata can walk a mile in 14 minutes. At this rate, it takes 56 minutes to walk around RIT campus. How many miles did Aminata walk?
12. What is the area of the parallelogram?

13. Express $5.09 \times 10^{3}$ in standard form.
11. $\qquad$ mi
10. $\qquad$ liters


14. Given $x=2$ and $y=-3$, evaluate $\frac{-x^{3}}{x+2 y}$
14.
15. Using the paths shown, how long is the shortest route from
15. $\qquad$ mi Rochester to Palmyra?

16. A quadrilateral has angles of $64^{\circ}, 140^{\circ}$, and $127^{\circ}$.
16. $\qquad$ degrees
17. Sam counted all the eggs in each chicken coop at the farm
17. $\qquad$ where he works. How many coops had at least 41 eggs?

| Eggs per Coop |  |
| :---: | :--- |
| Stem | Leaf |
| 2 | 126 |
| 3 | 039 |
| 4 | 035 |
| 5 | 1779 |

18. What is $50 \%$ of the sum of the first 10 positive even numbers?
19. The following line graphs show the number of hamburgers and cheeseburgers Crossroads sold from Monday to Friday. What is the ratio of cheeseburgers to hamburgers sold on Tuesday? Write your answer as a common fraction.

20. Eight less than four times a number equals ten more than two times a number. What is the number?
21. McKenna is running for office and wants to know the amount of income tax paid last year by households in her district. This box-and-whisker plot shows the results. What is the median?

Amount Paid in Taxes (\$)

22. Evaluate: $4^{-2}$ Write your answer as a common fraction.
23. Parallelogram $A B C D$ has $A(0,4), B(4,4)$, and $C(6,2)$ as three of its vertices. What is the sum of $x$ and $y$ coordinates of point $D$ ?

24. How long is the shadow of a 24 -foot tree if a 6 -foot student standing at the base of the tree has a shadow that is four feet long?
22.
23. $\qquad$
25. If you roll a 6 -sided die 18 times, what is the best prediction
25. possible for the number of times you will roll a five?
26. Solve for $x: \frac{x+7}{4}=3$
26.
27. The area of a large rectangular TV is 24 square feet. Find the
27. $\qquad$ ft smallest perimeter, in integers, of the TV.
28. At Dogtown, 2 of the last 12 customers wanted ketchup on
28. their hot dogs. What is the experimental probability that the next customer will not want ketchup? Write your answer as a common fraction.
29. How many 8 -inch by 8 -inch squares can be cut from a 29. $\qquad$ rectangular piece of cloth measuring 64 -inch by 24 -inch?
30. Students during lunch took a poll about their favorite 30. $\qquad$ degrees cookies. What is the measure of the central angle in the "Chocolate Chip" section?


