



**April 8, 2017**

**■ RIT Competition ■**  
**Sprint Round**  
**Problems 1 - 30**

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Name \_\_\_\_\_

**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 only final answers in the blanks in the right-hand column of the competition booklet. If you complete the problems before time is called, use the remaining time to check your answers.

In each written round of the competition, the required unit for the answer is included in the answer blank. The plural form of the unit is always used, even if the answer appears to require the singular form of the unit. The unit provided in the answer blank is the only form of the answer that will be accepted.

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Total Correct	Scorer's Initials
















1. Find the value of the expression when  $w = 40$  and  $y = 34$ .

$$w + 44 + y$$

1. \_\_\_\_\_

2. What is the lifespan of a bat?

2. \_\_\_\_\_ years

Lifespans of Animals	
Cow	 
Rattlesnake	 
Pigeon	  
Donkey	    
Bat	  

Each  = 10 years

Each  = 5 years

3. Divide:  $3 \div \frac{1}{9}$

3. \_\_\_\_\_

4. Which quadrant is the point  $(-3, 4)$  located in?

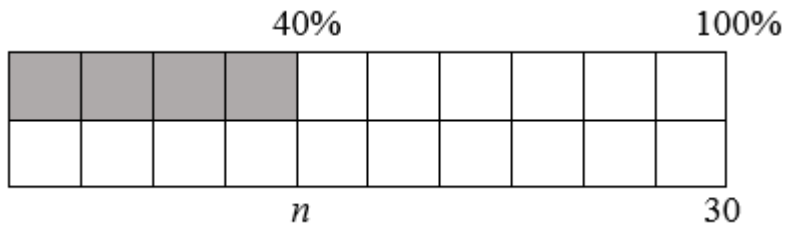
4. \_\_\_\_\_

5. If 57 pounds of apples cost \$570, how much would 32 pounds of apples cost?

5. \$ \_\_\_\_\_

6. Use the tape diagram to find the value of  $n$ .

6. \_\_\_\_\_



7. Write the next prime number for this number pattern:

7. \_\_\_\_\_

23, 29, 31, \_\_\_\_

8. Solve the equation for  $k$ :

8. \_\_\_\_\_

$$-6k - 13 = 83$$

9. A nutritionist noted the number of apples eaten by his students last week. How many students ate at most 1 apple last week?

9. \_\_\_\_\_

Eating apples last week	
Apples eaten	Frequency
0	10
1	16
2	13
3	19
4	12
5	15
6	14

10. At a recent school play, 630 of the 840 seats were filled. What percent of the seats were empty?

10. \_\_\_\_\_ %

11. Simplify:  $(3^2)^4$

11. \_\_\_\_\_

12. The table shows the cost of Chen's 13<sup>th</sup> birthday party depending on the number of friends. What is the cost per friend?

Chen's Birthday Party		
Friends	9	18
Total Cost	\$40.50	\$81

12. \$ \_\_\_\_\_

13. Write  $3.87 \times 10^3$  in standard notation.

13. \_\_\_\_\_

14. What number can be factored out this expression completely?

$$28x + 36$$

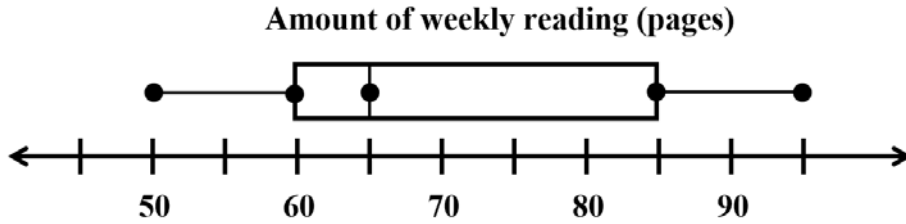
14. \_\_\_\_\_

15. The original line segment,  $RT$ , is 7 centimeters long. Rodolfo bisects it to form two new line segments,  $RI$  and  $IT$ . What is the measure of the line segment,  $RI$ ?

15. \_\_\_\_\_cm

16. Some friends are comparing the amount of weekly reading they have to for their classes. This box-and-whisker plot shows the results. What is the median?

16. \_\_\_\_\_pages



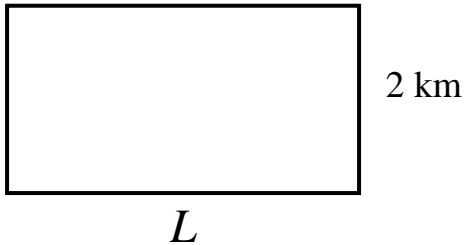
17. Solve for  $x$ :

17. \_\_\_\_\_

$$\frac{12}{x} = \frac{4}{7}$$

18. If the area of the rectangle is  $6 \text{ km}^2$ , find the length,  $L$ .

18. \_\_\_\_\_ km



19. There are 16 candies in a box and 4 of them are chocolates. If a candy is chosen at random, what is the probability that it will not be chocolate? Write your answer as a common fraction.

19. \_\_\_\_\_

20. Simplify:  $5^{-3}$

20. \_\_\_\_\_

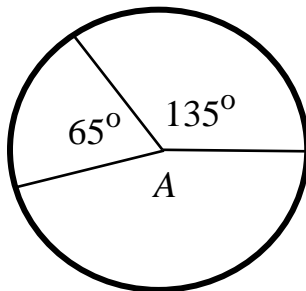
Write your answer as a common fraction.

21. If you start at the coordinates (6, 2), move 4 units to the right and then move down 3 units, what is the new coordinates (x, y)?

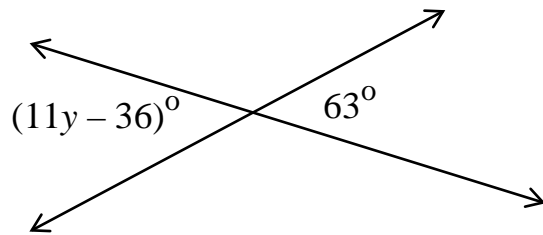
21. \_\_\_\_\_

22. Find the measure of the unknown angle,  $A$ .

22. \_\_\_\_\_ degrees



23. Find the value of  $y$ .



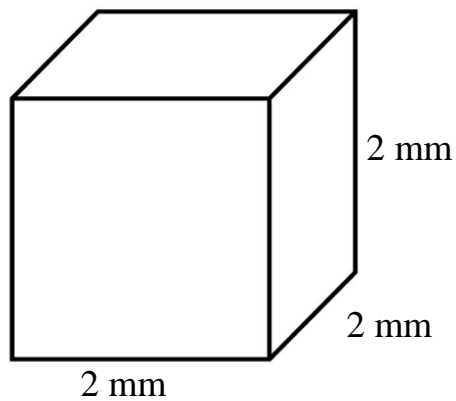
23. \_\_\_\_\_

24. Find the slope of a line that passes through  $(6, 8)$  and  $(-3, 4)$ .  
Write your answer as a common fraction.

24. \_\_\_\_\_

25. What is the total surface area of the cube?

25. \_\_\_\_\_  $\text{mm}^2$



26. Tomas read the first 50 pages of his book. He is 20% complete. What is the total number of pages in his book?

26. \_\_\_\_\_ pages



27. What is the range of the set?

27. \_\_\_\_\_

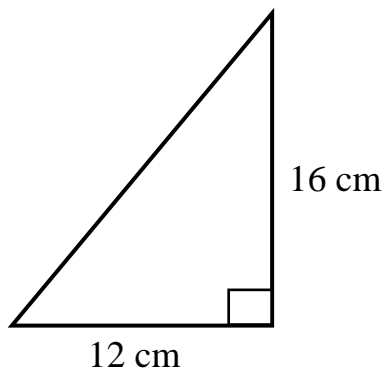
-8 -6 4 -8 0 -3 -7

28. Alvin sells used cars at Kaplan's Auto Dealer. His commission rate is 15%. What was his commission on the used Corvette he sold for \$36,000?

28. \$ \_\_\_\_\_

29. Find the length of the hypotenuse.

29. \_\_\_\_\_ cm



30. You spin the spinner and pick a card. How many outcomes are possible?

30. \_\_\_\_\_

