TEAM MATH QUEST SCORE SHEET ***2009 Junior Regional***

Middle/Junior High School *Category I: General Math or Pre-Algebra*

Team Information School:_____ Center:_____

Student Names:	Grade Level:	Current Math Class:
1		
2		
3		

Note: All answers must be in reduced form and include appropriate units of measurement.

#	Team Answer
1	
2	
3	
4	
5	
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#	Team Answer
16	
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27	
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29	
30	

For Judge's Use Only

_____ **x 4 =** _____

 # correct answers

minus

_____ **x 1 =** _____

 # incorrect answers

(do not include non-responses)

SCORE

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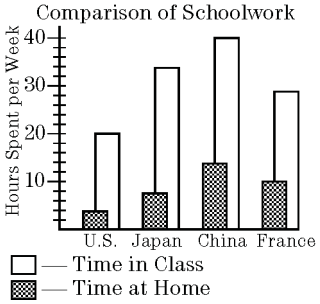
Team Math Quest: Category I

1. Jerry is 14 years old. Mary is a year older than one-half his age. How many years old was Mary 6 years ago?

2. Simplify: $\sqrt{3a} \cdot \sqrt{15a^2}$

3. In France, find the ratio of time spent on schoolwork at home to total time spent on in-school activities.



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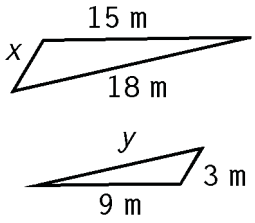
Team Math Quest: Category I

Find the lengths of the missing sides in the pairs of similar figures.

4. 

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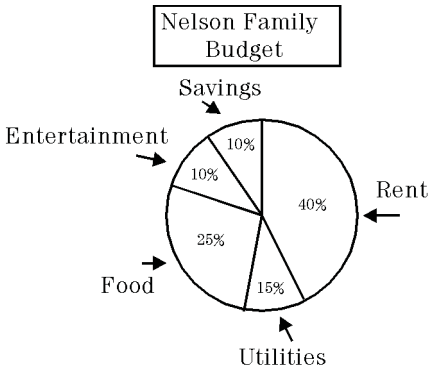
Team Math Quest: Category I

5. The moon is about 384,401 kilometers from the earth. How long would it take to get to the moon, traveling at a rate of 90 kilometers per hour?

6. The Nelson family budget is based on an income of \$4,000 per month. How much money did they put towards entertainment if they spent 2.5 times the budgeted amount?



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Team Math Quest: Category I

7. A book club offers your choice of 3 bestsellers for $10. How many combinations of 3 bestsellers can you choose from among the 15 offered by the club?

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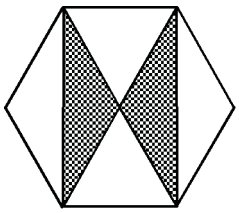
Team Math Quest: Category I

Write the ratio of the shaded region to the whole.

8. 

9. Simplify: $10 \div 4\frac{4}{5}$

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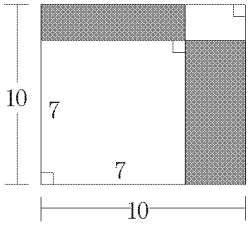
Team Math Quest: Category I

10. Find the area of the shaded region.



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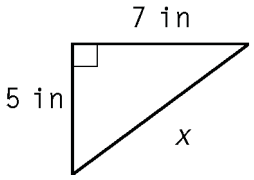
Team Math Quest: Category I

Use the Pythagorean theorem to find the length of the missing side.

11.



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Team Math Quest: Category I

12. Erik has a bag containing twenty identically-sized cubes. Ten cubes are blue, six cubes are red, and four cubes are white. If Samuel randomly pulls out two cubes, without replacing either, what is the probability that they BOTH are red?

13. Sherry rode her bike at 9 mph for 3 hours, then rode for the next 4 hours at 2 mph. What was her average speed?

14. What is the smallest integer greater than $\sqrt{300}$?

15. The weights, in kilograms, of 12 students in the ninth grade are listed in the chart. What is the mean (average) weight of these students?

Weight in Kilograms		
58	63	54
65	72	65
70	75	59
63	72	65

16. Shoemart marked down its Rockford shoes by 40%. A week later there was a storewide sale in which the prices of all merchandise was reduced by 20%. Find the price of a pair of Rockford shoes that originally sold for $70 during the storewide sale?

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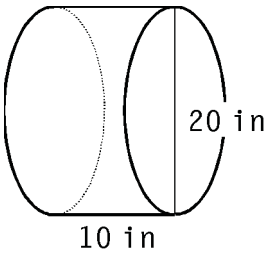
Team Math Quest: Category I

Find the surface area. (Use $\pi = 3.14$.)

17.



18. Simplify: $\dfrac{3^4 7}{2^2} \div \dfrac{3^{-1}2^4}{7}$

19. The length of a rectangle is twice its width. If the area of the rectangle is $162\,\text{cm}^2$, what is the length of the rectangle in centimeters?

20. How many seconds longer is 2% of a hour than 30% of a minute?

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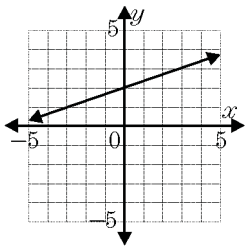
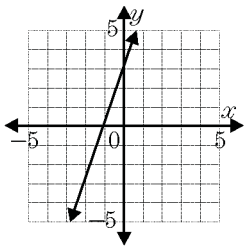
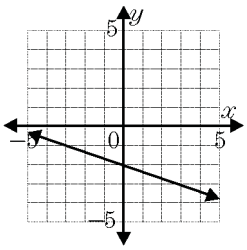
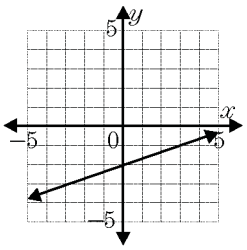
Team Math Quest: Category I

21. Which is the graph of $y = 3x + 3$?

a) 

b) 

c) 

d) 

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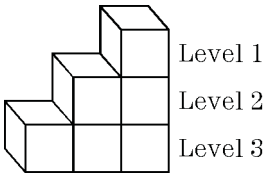
Team Math Quest: Category I

22. The 3 steps in the figure below are made by stacking cubes. What is the number of cubes required to make 15 steps given that each level contains 1 more cube than the level above it?



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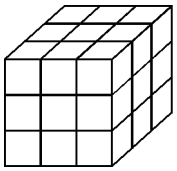
Team Math Quest: Category I

23. A cube is constructed using 27 smaller cubes as shown. The six faces of the large cube are painted and the large cube is then separated into the smaller squares. How many of the smaller squares have exactly three painted sides?



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Team Math Quest: Category I

24. For all real numbers x and y, where $y \neq 0$, $x \bigstar y = \dfrac{x^2 - 1}{y}$. Then find the value of $(4 \bigstar 5) \bigstar 2$.

25. A box of assorted chocolates contains 9 milk chocolates and 7 dark chocolates. Find the ratio of dark chocolates to the total number of chocolates.

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Team Math Quest: Category I

26. Yoshi is organizing a ski trip. He needs to order enough buses to transport 652 people. The bus company has told him that each bus can carry 48 passengers How many buses should Yoshi order?

27. What mixed number is $2\frac{3}{4}$ divided by $1\frac{1}{8}$?

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Team Math Quest: Category I

Write as an algebraic expression.

28. the perimeter of a rectangle with area A, and width of 4 inches

29. Jan threw 20 darts and hit the bullseye 5 times. *About* how many bullseyes would you expect Jan to get if she threw 45 darts?

30. Which point on the number line is the closest to $\sqrt{17}$?