

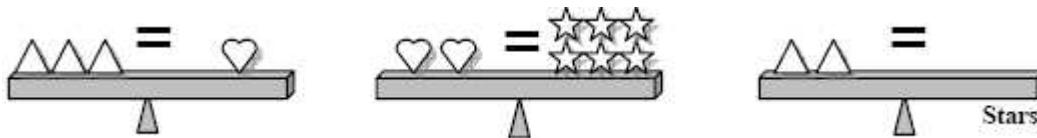
## 2008 MathEdge+ Contest

**Grades K-1 (JS) do problems 1-10. Grades 2-3 (B) do problems 1-15. Grades 4-5 (I) do problems 6-25. Grades 6-8 (A) do problems 6-30. Please box the answer. Only correct answer counts. No partial credit will be given. No Calculator. 40 mins. Solving harder problems would be used for tiebreak.**

1) How many bicycles can you see in the picture below?



2) Balance the following scales by drawing in the missing stars in the 3<sup>rd</sup> diagram:



3) In the addition problem, what digit does the apple represent?

$$\begin{array}{r}
 + \quad 7 \\
 \quad \quad \text{apple} \\
 + \quad \text{apple} \quad 3 \\
 \hline
 \quad 5 \quad \text{apple}
 \end{array}$$

4) Katie's birthday was yesterday. It is Thursday tomorrow. What day was Katie's birthday?

5) How many cubes have been removed from the first block to obtain the second one?

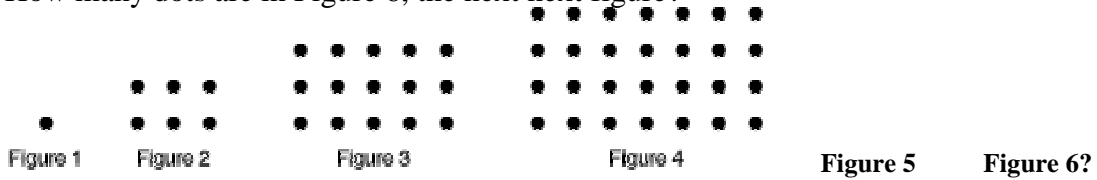


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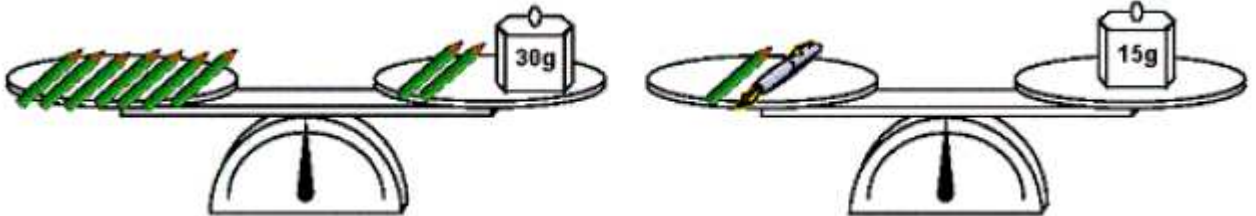
6) For his good work at the math class, Johnny was given a bag of Gummi Bear candies as reward. It has 25 pieces in the bag in the colors of yellow, red, orange, green, and brown with equal amount for each color. Johnny likes to eat it in the order according to his favorite. He first ate all the yellow, red and orange ones. How many pieces of candy are now left in the bag?

7) How many dots are in Figure 6, the next next figure?

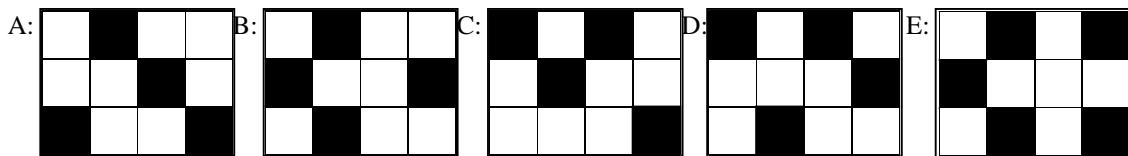
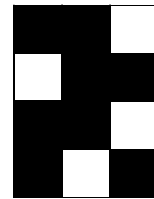


8) What number is 5 more than the number that is 10 less than 40?

9) The scales in both pictures were balanced. Pencils and a pen are on the arms of the scales. What is the weight of the pen in grams?



10) Five identical sheets of a plastic rectangles were divided into white and black squares. Which of the sheets from A to E has to be covered with the sheet to the right in order to get totally black rectangle?



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11) Place one digit in each box to make a correct subtraction problem. What is the sum of the digits in the five boxes?

$$\begin{array}{r}
 6 \square 4 \square 3 \\
 - \square 4 8 2 \square \\
 \hline
 9 \square 4 7
 \end{array}$$

12) The sum of the two 5-digit numbers ABC10 and ABC12 is 123422. What is A + B + C?

13) What is the result of the addition and subtraction shown below?

$$\begin{array}{r}
 1111111111 \\
 - 1111111111 \\
 + 1111111111 \\
 - 1111111111 \\
 + 1111111111 \\
 - 1111111111 \\
 + 1111111111 \\
 - 1111111111 \\
 + 1111111111 \\
 - 1111111111 \\
 + 1111111111 \\
 - 1111111111 \\
 \hline
 \end{array}$$

14) Eve was supposed to multiply a certain number by 10 but instead she divided that number by 10. With that she got 937 as a result. What would be the result if she hadn't made that mistake?

15) In a time table practice worksheet on the right, every white section is the products of two numbers from the gray sections – one from above and one from the left (for example:  $42 = 7 \cdot 6$ ). Some of these products are represented by letters. Which two letters represent the same number and what would be the number?

•				7
	J	K	L	56
	M	36	8	N
	T	27	6	P
6	18	R	S	42

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16) To paint all sides of a cube that was built out of little cubes (Figure 1) 9 pounds of paint was used. How many pounds of paint are needed to paint the white region of the solid shown in Figure 2?

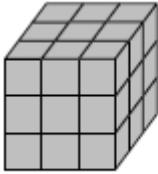


Figure 1

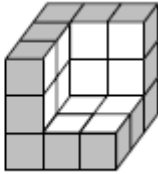
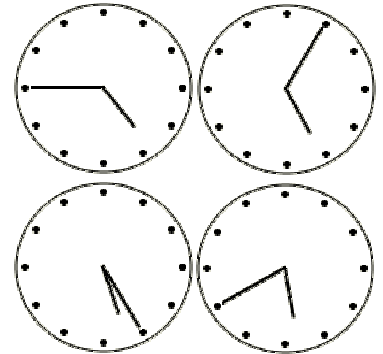


Figure 2

17) What is the minimum number of times a pen must be lifted out of the page in order to draw the Kitty diagram?



18) Four clocks are on the wall (see the picture) but only one of them shows correct time. One of them is 20 minutes ahead, another is 20 minutes late, and the other is stopped. What is the correct time at the moment?



19) The odd numbers from 1 through 17 are placed in the magic square so that the sum of the numbers in each row, column and diagonal are equal. What number goes in the square marked "X"?

	1	
5	A	13
X	B	3

20) Mary forgot her code to unlock her locker at school. She knows that she has created the code with 5 different even digits but forgot the order that it should be entered. What would be the maximum number of trials that she needs to make in order to open her locker?

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21) Each letter represents a different single digit. What would be the value of A, B, C, D, and E?

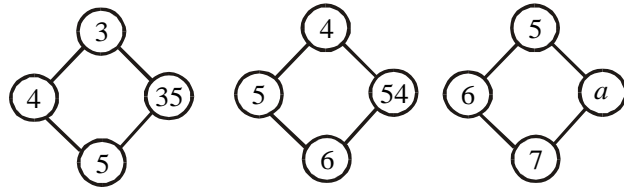
$$\begin{array}{r}
 \phantom{x} \phantom{A} B \\
 x \phantom{A} B \\
 \hline
 \phantom{C} A B \\
 B D B \\
 \hline
 B E D B \\
 \hline
 \hline
 \hline
 \end{array}$$

22) The average of five numbers is 18. Let the first number be increased by 1, the second number by 2, the third number by 3, the fourth number by 4, and the fifth number by 5. What is the average of the set of increased numbers?

23) Find the next three numbers in the series and answer also what is the pattern?

5   10   40   240                     

24) Observe the pattern and find the value of  $a$ .



25) In a rabbit race, the rabbit who came three places in front of the rabbit who finished last came two places ahead of the rabbit who came seventh. How many rabbits were in the race?

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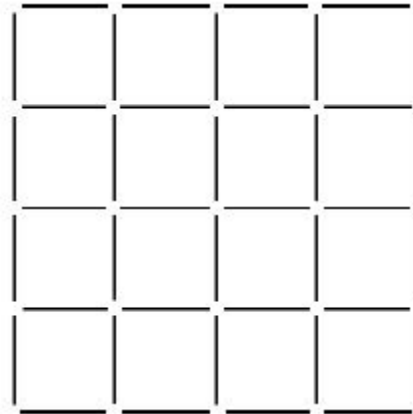
26) What would be the value of the following expression?

$$\frac{1}{2008} + \frac{2}{2008} + \frac{3}{2008} + \dots + \frac{2006}{2008} + \frac{2007}{2008}$$

27) Each of the angles of a triangle when expressed in degrees is a perfect square. What would be the value of the three angles?

28) How many different 5-digit palindromes are there? (A palindrome is any number that reads the same forwards and backwards, such as 151, 729927 or 88388)

29) Given a 4×4 square grid made up of matchsticks (i.e. 40 matchsticks), what is the minimum number of matchsticks you can remove such that there are no squares left?



30) What is the value of the following expression?

$$\sqrt{\sqrt{\sqrt{\sqrt{1+2000}\sqrt{1+2001}\sqrt{1+2002}\sqrt{1+2003}\times 2005}}}}$$