

Green Bay West High Elementary Math Bowl  
May 7, 2002

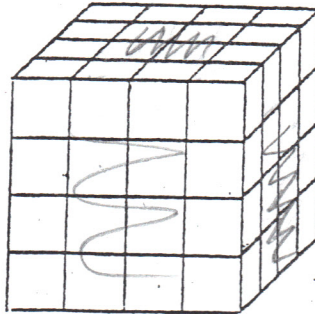
Name: \_\_\_\_\_ School: \_\_\_\_\_  
Team Number: \_\_\_\_\_

Event 4: Random Hat

1. Answer in regular numbers: XXXIV - VIII + IX - XXII  
34 - 8 + 9 - 22

13

2. Joe has a large cube consisting of 16 small cubes on a side. The cube has 6 sides. He paints 5 out of the 6 sides purple. How many individual cubes have just one side painted purple?



$6 \times 4 = 24$   
 $1 \times 4 = 4$   
28

28

3. Karen and Joanne have the same birthday. Two years ago Joanne was twice as old as Karen. In 4 years Joanne will be 30. How old will Karen be in 4 years? (Hint: Find Joanne's present age first)

$$\begin{array}{r} 26 \\ -2 \\ \hline 24 \end{array}$$
 - Joanne 2yrs ago  
$$\begin{array}{r} 12 \\ +2 \\ \hline 14 \end{array}$$
 - Karen  
today  $+4 = 18$

18

4. Danny has a list of perfect squares from 1 to 100. Starting with 1, he divides every other perfect square by 2. He then divides the remaining perfect squares by 3. He adds all the numbers divided by three together, and subtracts that fraction from the sum of all the numbers he divided by two. What fraction is Danny left with?

$$\frac{165 \times 3}{2 \times 3} - \frac{220 \times 2}{3 \times 2}$$
  
$$\frac{495}{6} - \frac{440}{6} = \frac{55}{6}$$

$$\begin{array}{cccccccccc} 1^2 & 2^2 & 3^2 & 4^2 & 5^2 & 6^2 & 7^2 & 8^2 & 9^2 & 10^2 \\ \frac{1}{2} & \frac{4}{3} & \frac{9}{2} & \frac{16}{3} & \frac{25}{2} & \frac{36}{3} & \frac{49}{2} & \frac{64}{3} & \frac{81}{2} & \frac{100}{3} \end{array}$$

$\frac{55}{6}$

$$1+9+25+49+81 - \frac{4+16+36+64+100}{3} = \frac{165}{2} - \frac{220}{3}$$

5. Claire is an interior designer. She needs to cover a 75 square-foot wall with wallpaper. If wallpaper is sold in rolls that are 5 feet wide, how long a piece of wallpaper does Claire need to buy?

$$\begin{array}{r} 15 \\ 5 \overline{)75} \\ \underline{5} \phantom{0} \\ 25 \\ \underline{25} \\ 0 \end{array}$$

15 ft

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**Event 5: Team Round**

1. A regular hexagon is a six-sided shape with each side having the same length as shown below. If  $x = 7$  and  $h = 6$ , find the area of the entire hexagon.

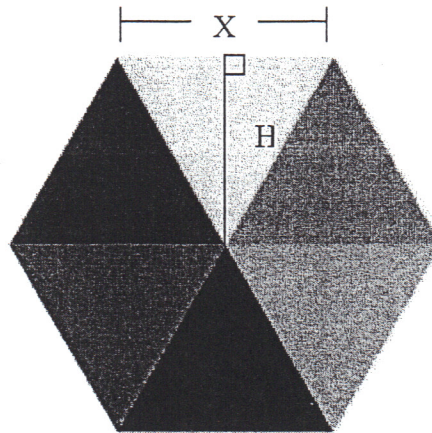
$$A = \frac{1}{2} \cdot b \cdot h$$

$$A = \frac{1}{2} \cdot 6 \cdot 7$$

$$A = 21$$

6  $\Delta$ 's

126



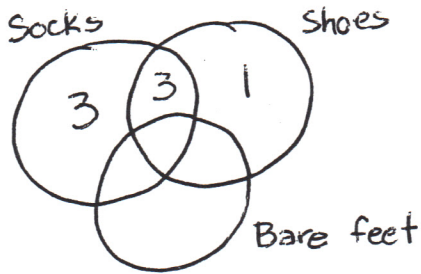
\_\_\_\_\_ 126 \_\_\_\_\_

2. What value does a  $\Delta$  have?  
What value does a  $\square$  have?

$$\begin{array}{r}
 \square \quad 3 \quad \triangle \quad \triangle \\
 \quad 4 \quad 5 \quad \square \\
 + \quad \square \quad 1 \quad \triangle \quad 7 \\
 \hline
 \boxed{8 \quad 9 \quad 0 \quad 3}
 \end{array}$$

\_\_\_\_\_  $\Delta = 2 \quad \square = 4$  \_\_\_\_\_

3. There are 12 people in a room. 6 people are wearing socks and 4 people are wearing shoes. 3 people are wearing both socks and shoes. How many people are in bare feet?



$$3 + 3 + 1 = 7$$

$$12 - 7 = 5$$

5

4. Rachel opened her math book to a random spot. She added the page numbers of the left page and right page and found the sum to be 243. When she turns one more page, what will be the page number on the right?

$$121 + 122 = 243$$

turn the page

$$123 = \textcircled{124}$$

124

5. On January 1st 1989, the price of a soccer ball was \$8.00. A financial analyst predicted that the price would rise \$0.75/ year for the next 100 years, what year will the price be \$30.50?

$$0.75 \times 4 = 3.00$$

Every 4 years  $\rightarrow$  \$3.00

In 28 years  $\rightarrow$  \$21.00

$$\begin{array}{r} 1989 \rightarrow 8.00 \\ +28 \quad +21 \\ \hline 2017 \rightarrow 29.00 \\ 2 \text{ more years} \\ 2019 \rightarrow \$30.50 \end{array}$$

2019

6. You can buy 6 bananas for \$2.10 or 1 banana for \$0.40. Alex must buy 489 bananas (we don't know why!). What is the least amount of money it will cost him?

$$\begin{array}{r} 81 \text{ R } 3 \\ 6 \overline{) 489} \end{array}$$

81 groups of 6

$$\Rightarrow 81 \cdot 2.10 = 170.10$$

3 separate bananas

$$3 \cdot .40 = 1.20$$

\$171.30

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**Event 1: Arithmetic**

1.  $\frac{23}{4}, \frac{6}{10}, \frac{12}{5}, \frac{7}{3}, \frac{16}{2}$ : List from least to greatest

$$5\frac{3}{4}, \frac{3}{5}, 2\frac{2}{5}, 2\frac{1}{3}, 8$$

$$\frac{6}{10}, \frac{7}{3}, \frac{12}{5}, \frac{23}{4}, \frac{16}{2}$$

$$\frac{3}{5}, 2\frac{1}{3}, 2\frac{2}{5}, 5\frac{3}{4}, 8$$

2. If  $5! = 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = 120$  then what does  $(3^2 - 2^2 + 1)!$  equal?

$$(3^2 - 2^2 + 1)!$$

$$(9 - 4 + 1)!$$

$$(5 + 1)!$$

$$6! = 6 \cdot \boxed{5 \cdot 4 \cdot 3 \cdot 2 \cdot 1}^{120}$$

720

3. What is the number that is one half of one quarter of one tenth of four hundred?

$$\frac{1}{2} \left[ \frac{1}{4} \left( \frac{1}{10} \cdot 400 \right) \right]$$

$$\frac{1}{2} \left[ \frac{1}{4} (40) \right]$$

$$\frac{1}{2} [10]$$

5

4.  $(25 \cdot 2 + 7) \div \left( 1 + \frac{1 \cdot 6^{2-1}}{3} \right)$

$$(50 + 7) \div \left( 1 + \frac{1 \cdot 6}{3} \right)$$

$$57 \div 3$$

19