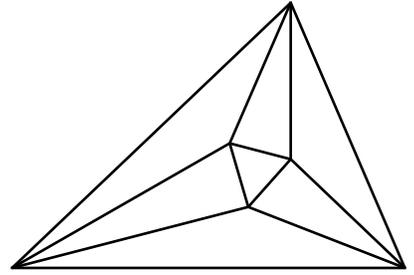


# Meet 5 - Event A 2002-2003

Questions are worth 2-2-2-4-4 points respectively.  
Remember your units.



\_\_\_\_\_ 1. Sally entered ten quiz scores in a stem-and-leaf plot for her teacher. Which score is in the wrong place?

```
5 * | 0 0 0
4 • | 6 7
4 * | 3 4 5
3 • | 8 8
```

\_\_\_\_\_ 2. When Ralph saw the stem-and-leaf plot Sally just posted, he was pleased because he is always in the upper half of the class. If this is true, what is the probability that he got a score of 50?

\_\_\_\_\_ 3. Jason used blocks of 1 cubic centimeter in size to make a large cube 4 cm on each edge. How many blocks did he use?

\_\_\_\_\_ 4. Jason painted the large cube with black paint, let it dry, and then took it apart into 1 cubic centimeter blocks again. How many blocks had no black paint on them?

\_\_\_\_\_ 5. Given these six scores: 33, 43, 30, 33, 38, 50. Which measurement of center will change the most if the 50 is replaced by 40?

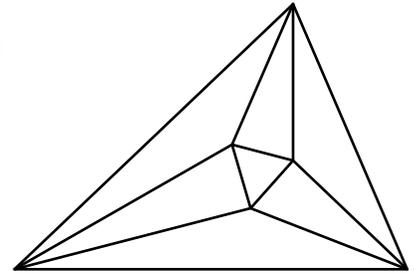
- A. mean                      B. median                      C. mode

Name \_\_\_\_\_ School \_\_\_\_\_

# Meet 5 - Event A 2002-2003

## Answers

Questions are worth 2-2-2-4-4 points respectively.  
Remember your units.



45 1. 4 \* scores should be 40, 41, 42, 43, or 44  
4 • scores should be 45, 46, 47, 48, or 49

$\frac{3}{5}$  2. There are ten scores, so 50, 50, 50, 47, and 46 are the upper half.  
or 0.6  
or 60%

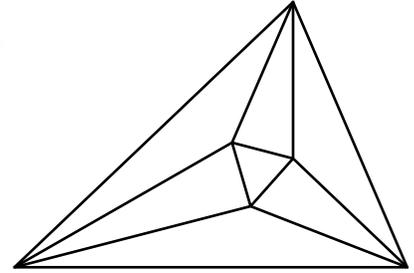
64 3. Cubic centimeter blocks are a measure of volume, so  $4 \times 4 \times 4 = 64$ .

8 4. All the blocks on the outside had paint, so there were 8 blocks in the center ( $2 \times 2 \times 2$ ) with no paint.

A or mean 5. The median remains 35.5, the mode is still 33, and the mean goes from  $37.\overline{83}$  to  $36.\overline{16}$ . No actual calculations are needed to reason this out.

# Meet 5 - Event B 2002-2003

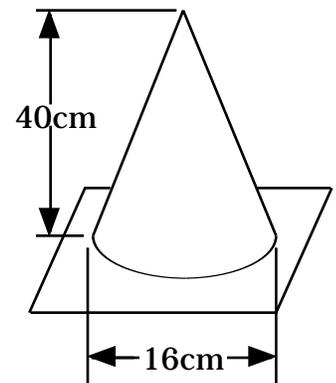
Questions are worth 2-2-2-4-4 points respectively.  
Remember your units.



\_\_\_\_\_ 1. Find the one numerical equivalent value for:  $\sum_{n=2}^0 4n$ .

\_\_\_\_\_ 2. Write as a trinomial ( 3 terms ):  $(x + 2)(x - 7)$ .

\_\_\_\_\_ 3. An orange traffic cone was taken to a sand pile and filled with sand. If the cone was 40 cm high and 16 cm across the opening, how much sand did it hold, to the nearest whole number?



\_\_\_\_\_ 4. When expanded as a decimal,  $\frac{5}{43}$  has a 42 digit repetend. What are the last two digits?

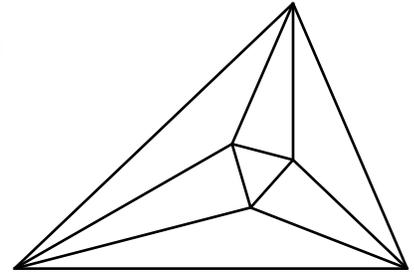
\_\_\_\_\_ 5. What is  $x^3 + x - 1$  divided by  $x^2 + 1$ ?

Name \_\_\_\_\_ School \_\_\_\_\_

# Meet 5 - Event B 2002-2003

## Answers

Questions are worth 2-2-2-4-4 points respectively.  
Remember your units.



-12 1.  $4(-2) + 4(-1) + 4(0) = -8 - 4 = -12$

$x^2 - 5x - 14$  2.  $(x + 2)(x - 7) = x^2 - 7x + 2x - 14 = x^2 - 5x - 14$

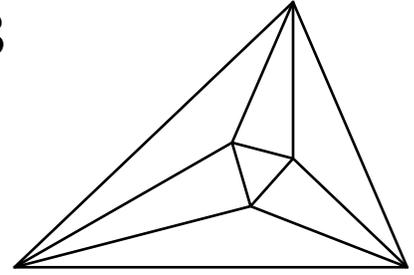
$2681 \text{ cm}^3$  3.  $h = 40, d = 16 \text{ so } r = 8 \quad V = \frac{1}{3}\pi r^2 h = \frac{\pi 8^2 40}{3} = 2680.82$   
 or 2681 cc

65 4. 
$$\begin{array}{r} 0.11...K65 \\ 43 \overline{)5.00K...00} \\ \underline{280} \phantom{00} \\ 258 \phantom{00} = 6 \times 43 \\ \underline{220} \phantom{00} \\ 215 \phantom{00} = 5 \times 43 \\ \underline{5} \phantom{00} \end{array}$$

$x - \frac{1}{x^2 + 1}$  5. 
$$\begin{array}{r} x \\ x^2 + 1 \overline{)x^3 + x - 1} \\ \underline{x^3 + x} \phantom{-1} \\ -1 \end{array}$$
 (There has been a long division problem every meet , leading up to this.)

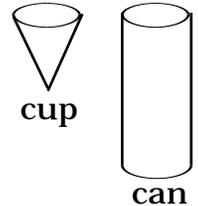
# Meet 5 - Event C 2002-2003

Questions are worth 2-2-2-4-4 points respectively.  
Remember your units.



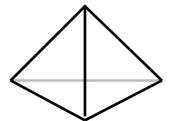
\_\_\_\_\_ 1. Removal of one of these numbers will result in no change in the mean, median, or mode. Which number?  
32, 32, 32, 36, 36, 38, 40, 42

\_\_\_\_\_ 2. Yeng uses a conical cup to fill a cylindrical can with water. If the cup and can had the same size circular top, but the can was twice as deep as the cup, how many cups did it take to fill the can?



\_\_\_\_\_ 3. Factor completely:  $4x^2 - 20x^3$ .

\_\_\_\_\_ 4. If a tetrahedron made of four equilateral triangles has a surface area of  $12 \text{ cm}^2$  and a height of 2.15 cm, what is its volume?



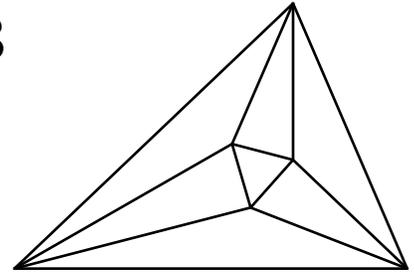
\_\_\_\_\_ 5. Jason used 64 cubes, 1 cm on each edge, to make a large cube. He painted the large cube black, then took it apart. How many 1 cc cubes had no black paint on them?

Name \_\_\_\_\_ School \_\_\_\_\_

# Meet 5 - Event C 2002-2003

## Answers

Questions are worth 2-2-2-4-4 points respectively.  
Remember your units.



36 1. mean=36, median=36, mode=32. If you remove the 36, clearly the mean and mode will not change, and the median is still 36. Removal of any other number will change the mean.

6 2. The volume of a cone is  $\frac{1}{3}$  the volume of a cylinder with the same radius and height. With the "twice" as deep condition, there are two cylinders, so 6 cones will fill the can.

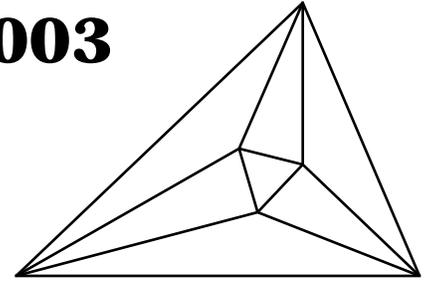
$4x^2(1-5x)$  3.  $4x^2 - 20x^3 = 4x^2(1-5x)$

$\frac{2.15\text{cm}^3}{\text{or } 2.15 \text{ cc}}$  4.  $\frac{12}{4} = 3\text{cm}^2 = \text{Area of base, } V = \frac{1}{3}(3)(2.15) = 2.15\text{cm}^3$

8 5. The large cube was  $4 \times 4 \times 4$  cm. All the outside cubes had paint on them, so there were 8 cubes in the center ( $2 \times 2 \times 2$ ) with no paint.

# Meet 5 - Team Event 2002-2003

Questions are worth 4 points each.  
Remember your units.

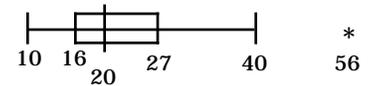


\_\_\_\_\_ 1. Josh has nine pennies, four nickels, and five dimes in his pocket. If he reaches into his pocket, how many coins must he grab to be guaranteed to have 8 cents in exact change?

\_\_\_\_\_ 2. If Josh grabs 1 coin from his pocket, what is the probability it is a dime?

\_\_\_\_\_ 3. If Josh grabs 4 coins from his pocket one at a time, what is the probability that they are all dimes, as a fraction in lowest terms?

\_\_\_\_\_ 4. In this box-and-whisker plot, 56 is called an:  
A. mean    B. median    C. mode    D. outlier  
E. range    F. quartile



\_\_\_\_\_ 5. In problem 4, 20 is the A. mean    B. median    C. mode    D. outlier  
E. range    F. quartile.

\_\_\_\_\_ 6. If a histogram was made of the data in the plot in problem 4, the tallest bar would be between: A. 10 and 16    B. 16 and 20    C. 20 and 27  
D. 27 and 40    E. 40 and 56

\_\_\_\_\_ 7. Write as a trinomial:  $(2x - 5)(4x + 3)$

\_\_\_\_\_ 8. Solve for  $x$ :  $2(x - 4) = 3(x + 8)$

\_\_\_\_\_ 9. If the diameter of a sphere is 10 m, what is the volume to two significant figures?

\_\_\_\_\_ 10. Simplify, arranging the terms in descending order:  
 $4x^2 - 3(x + 1) - 5x(x - 7)$

School \_\_\_\_\_

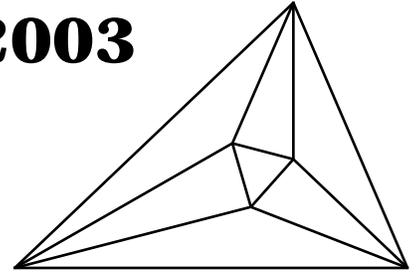
# Meet 5 - Team Event

# 2002-2003

## Answers

Questions are worth 4 points each.

Remember your units.



13 1. He needs 8 pennies or 1 nickel and 3 pennies. Worst case: he grabs 5 dimes, 7 pennies=12 coins. The 13th must be a nickel or a penny.

$\frac{5}{18}$   
18 2.  $9+4+5=18$  coins total with 5 dimes  
or  $0.2\overline{7}$

$\frac{1}{612}$  3. The probability that the first coin is a dime is  $\frac{5}{18}$ . The probability that the 2nd coin is a dime is  $\frac{4}{17}$ , for the 3rd dime is  $\frac{3}{16}$ , and for the 4th dime is  $\frac{2}{15}$  so  $\frac{5}{18} \cdot \frac{4}{17} \cdot \frac{3}{16} \cdot \frac{2}{15} = \frac{120}{73440}$

D or outlier 4.

B or median 5.

B or 16 and 20 6. This is the shortest range where about one fourth of the data is located.

$8x^2 - 14x - 15$  7.  $8x^2 + 6x - 20x - 15 = 8x^2 - 14x - 15$

-32 8.  $2x - 8 = 3x + 24$ ,  $-32 = x$

$520 \text{ m}^3$  9.  $V = \frac{4}{3}\pi r^3$  and  $r = 5\text{m}$  so  $V = \frac{4}{3}\pi(5)^3 = 523.598 \text{ m}^3$   
or 520 cubic meters

$-x^2 + 32x - 3$  10.  $4x^2 - 3x - 3 - 5x^2 + 35x = -x^2 + 32x - 3$