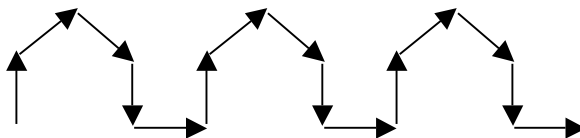


2005 Washington State Math Championship

Unless a particular problem directs otherwise, give an exact answer or one rounded to the nearest thousandth.

Potpourri - Grade 5

1. Find the sum of the prime numbers between 50 and 100.
2. How many perfect squares are there between 1001 and 2005?
3. If a number is added to 16 times its reciprocal, the result is -8 . Find the number.
4. Find the sum of the next three terms of the sequence: 3, 3, 6, 9, 15, 24, 39, ...
5. Ted the tired the inchworm is trying to crawl out of a 12in tall can with greasy sides. He can only crawl for one minute, and only goes 3 inches before he is too tired and must rest. He needs to rest for a minute to regain his strength, and while he is resting he slides back down one inch. How many minutes will it take Ted to crawl out?
6. Lucy's marble collection has 8 red marbles, and 12 blue marbles, 5 black marbles and 13 white marbles. How many marbles must Lucy pull out at random to make sure she has two of the same color?
7. When traveling to the planet Zeta-9 you must exchange all of your funds to the local currency, and you are only allowed to carry Zombas. So how many Zombas you will get for \$3360, according to the following exchange rates:
 - a. 3 Uzzles = 16\$
 - b. 7 Uzzles = 15 Orpas
 - c. 3 Orpas = $\frac{1}{2}$ Zomba
8. What is the sum of the positive two-digit perfect cubes?
9. Sketch the 1003 arrow of the sequence.



10. In the cryptarithm shown, where each letter stands for a distinct digit(0-9), what is the value of $M + O + N + E + Y$?

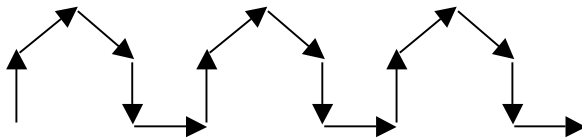
$$\begin{array}{r} SEND \\ + MORE \\ \hline MONEY \end{array}$$

2005 Washington State Math Championship

Unless a particular problem directs otherwise, give an exact answer or one rounded to the nearest thousandth.

Potpourri - Grade 6

1. Find the sum of the next three terms of the sequence: 3, 3, 6, 9, 15, 24, 39, ...
2. Ted the tired the inchworm is trying to crawl out of a 12in tall can with greasy sides. He can only crawl for one minute, and only goes 3 inches before he is too tired and must rest. He needs to rest for a minute to regain his strength, and while he is resting he slides back down one inch. How many minutes will it take Ted to crawl out?
3. Lucy's marble collection has 8 red marbles, and 12 blue marbles, 5 black marbles and 13 white marbles. How many marbles must Lucy pull out at random to make sure she has two of the same color?
4. When traveling to the planet Zeta-9 you must exchange all of your funds to the local currency, and you are only allowed to carry Zombas. So how many Zombas you will get for \$3360, according to the following exchange rates:
 - 3 Uzzles = 16\$
 - 7 Uzzles = 15 Orpas
 - 3 Orpas = $\frac{1}{2}$ Zomba
5. What is the sum of the positive two-digit perfect cubes?
6. Sketch the 1003 arrow of the sequence.



7. In the cryptarithm shown, where each letter stands for a distinct digit(0-9), what is the value of $M + O + N + E + Y$?

$$\begin{array}{r} SEND \\ + MORE \\ \hline MONEY \end{array}$$

8. Calculate the mean for an experiment if the scores for 50 trials were recorded as follows:

Score	Number of occurrences
1	5
2	12
3	10
4	16
5	6
6	1

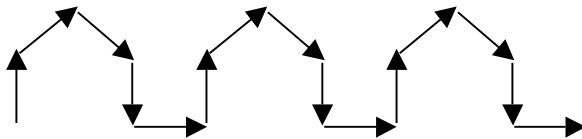
9. Express $456_{(7)}$ as a base ten number
10. Fifteen consecutive integers add up to 1605. What is the smallest of these numbers?

2005 Washington State Math Championship

Unless a particular problem directs otherwise, give an exact answer or one rounded to the nearest thousandth.

Potpourri - Grade 7

1. When traveling to the planet Zeta-9 you must exchange all of your funds to the local currency, and you are only allowed to carry Zombas. So how many Zombas you will get for \$3360, according to the following exchange rates:
 - 3 Uzzles = 16\$
 - 7 Uzzles = 15 Orpas
 - 3 Orpas = $\frac{1}{2}$ Zomba
2. What is the sum of the positive two-digit perfect cubes?
3. Sketch the 1003 arrow of the sequence.



4. In the cryptarithm shown, where each letter stands for a distinct digit(0-9), what is the value of $M + O + N + E + Y$?

$$\frac{SEND + MORE}{MONEY}$$

5. Calculate the mean for an experiment if the scores for 50 trials were recorded as follows:

Score	Number of occurrences
1	5
2	12
3	10
4	16
5	6
6	1

6. Express 456(base 7) as a base ten number
7. Fifteen consecutive integers add up to 1605. What is the smallest of these numbers?
8. A 50% solution of fruit juice is mixed with a 10% solution of fruit juice to get 100 gallons of 22% solution. How many gallons of the 10% solution is used?
9. A 6x6x6 cube is painted and then cut into 27 smaller cubes each 2x2x2. How many of the 2x2x2 cubes have paint on exactly one side?
10. Find the next number in the sequence: 1, 4, 9, 61, 52, 63, 94, ??????

2005 Washington State Math Championship

Unless a particular problem directs otherwise, give an exact answer or one rounded to the nearest thousandth.

Potpourri - Grade 8

1. In the cryptarithm shown, where each letter stands for a distinct digit(0-9), what is the value of $M + O + N + E + Y$?

$$\begin{array}{r} SEND \\ + MORE \\ \hline MONEY \end{array}$$

2. Calculate the mean for an experiment if the scores for 50 trials were recorded as follows:

Score	Number of occurrences
1	5
2	12
3	10
4	16
5	6
6	1

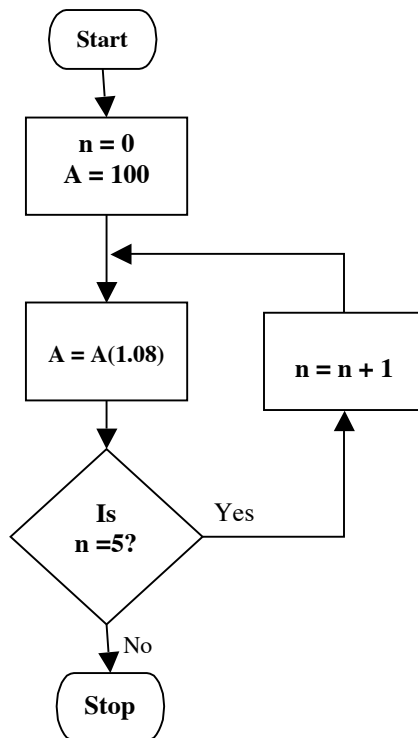
3. Express 456(base 7) as a base ten number
4. Fifteen consecutive integers add up to 1605. What is the smallest of these numbers?
5. A 50% solution of fruit juice is mixed with a 10% solution of fruit juice to get 100 gallons of 22% solution. How many gallons of the 10% solution is used?
6. A 6x6x6 cube is painted and then cut into 27 smaller cubes each 2x2x2. How many of the 2x2x2 cubes have paint on exactly one side?
7. Find the next number in the sequence: 1, 4, 9, 61, 52, 63, 94, ??????
8. Use the relationship where $\langle\langle x \rangle\rangle = x^2 + 2x + 1$, and the fact that $\langle\langle 9 \rangle\rangle = n$, find the value of n.

9. A video club rents out cameras, tapes, and recorders. The Secretary said that of all the members who rented items during the month,

1 rented cameras only,
 2 rented tapes only,
 4 rented recorders only,
 5 rented at least two items including cameras and tapes,
 3 rented at least two items including cameras and recorders,
 8 rented at least two items including recorders and tapes, and
 2 rented cameras, tapes and recorders.

How many members rented items during the month?

10. Consider the flow chart below.




Use it to complete this table of values for n and A

n	0	1	2	3	4	5
A	100					

What is the sum of the bottom row of numbers to the nearest tenth?

Potpourri Answers 2005

1. 732
2. 13
3. -4
4. 330
5. 11min
6. 5
7. 225 Zombas
8. 91
9. 
10. 14
11. 3.18
12. 237
13. 100
14. 70 Gallons
15. 6
16. 46
17. 100
18. 19 members
19. 733.6