

SOLUTIONS -- CONTEST #1

PLEASE READ CAREFULLY

2007-2008

GRADE 6

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| 1. 48 (%)
2. 7
3. 288
4. 96
5. 1
6. 26
7. 2
8. Rock River | 1. $100 - (26 + 12.9 + 4.8 + 4.3 + 4) = 48$ (%)
2. $(a + c) + (b + d) = 10 + (b + d) = 22$; Thus, $b + d = 12$. Since $d = 5$, $b = 7$
3. $2(16)(9) = 288$
4. 696 is divisible by 4. So "ab" = 96
5. $35/17$ is approximately 2 miles per sharpening. So only once. |
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| 6. 12, 13, 14, 15, 16, 17, 18, 19 yields 8 numbers
23, 24, 25, 26, 27, 28, 29 yields 7 numbers
34, 35, 36, 37, 38, 39 yields 6 numbers
45, 46, 47, 48, 49 yields 5 numbers | Total = $8 + 7 + 6 + 5 = 26$ |
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7. 1:21 and 1:44 for 2 times.

8. The towns in order from West to East: Rock River, Lexington, Columbus, Ames, and Rock Falls.

GRADE 7

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| 1. 43
2. 3
3. (\$) 2.88
4. 24
5. 5
6. 36
7. 7
8. Soda Springs | 1. $1000 (4.3\%) = 43$
2. $(a + c) + (b + d) = 13 + (b + d) = 29$; Thus, $b + d = 16$.
$a + (b + d) = a + 16 = 19$; Thus, $a = 3$
3. $16(9)(2) = 288$ cents = \$2.88 (<u>Cannot</u> be given as 288 cents)
4. 604, 608, 612, . . . , 696 for 24 numbers
5. $35/17$ is a slight bit more than 10 miles per sharpening. Thus, the pencil will be sharpened; write 2+ miles; sharpened; write 2+ miles; sharpened; write 2+ miles; sharpened; write 2+ miles; sharpened; write till 10 miles is completed. The number of sharpenings was 5. |
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| 6. 12, 13, 14, . . . , 19 for 8 numbers;
23, 24, 25, . . . , 29 for 7 numbers;
34, 35, 36, . . . , 39 for 6 numbers;
45, 46, 47, . . . , 49 for 5 numbers;
In the 50's 4 numbers; in the 60's 3 numbers; in the 70's 2 numbers, and in the 80's one number;
Thus, the total is $8 + 7 + 6 + 5 + 4 + 3 + 2 + 1 = 36$ | |
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7. 1:21, 1:44, 2:25, 2:56, 3:24, 4:00, 4:41 for 7 times

8. The order from West to East: Soda Springs, Rock River, Lexington, Columbus, Ames, and Rock Falls.

GRADE 8

1. 480
2. 2
3. (\$) 2.16
4. 888
5. 4
6. 35
7. 10
8. Soda Springs

1. (Note problem #1, grade 6). 48% will not list one of the top 5 flavors. Thus, $48\%(1000) = 480$
2. $(x + z) + y = 4 + y = 14$; Thus, $y = 10$; And then $10 + z = 12$ and $z = 2$.
3. Jack has $3.5(16)(9) = \$5.04$; Jill has $5(16)(9) = \$7.20$. $\$7.20 - \$5.04 = \$2.16$
4. $52 + 56 + 60 + 64 + 68 + 72 + 76 + 80 + 84 + 88 + 92 + 96 = 888$
5. $(500)(300) / 45000$ is approximately 3.3 pencils; however, this would require 4 pencils since one could not buy a third of a pencil.

6. 101, 102, 103, . . . , 109 for 9 numbers; 112, 113, 114, . . . , 119 for 8 numbers; 123, 124, 125, . . . , 129 for 7 numbers; 134, 135, 136, . . . , 139 for 6 numbers; 145, 146, 147, . . . , 149 for 5 numbers. Total is $9 + 8 + 7 + 6 + 5 = 35$
7. 1:21, 1:44, 2:25, 2:56; 3:24, 4:00, 4:41, 5:29, 6:25, 7:29 for a total of 10 times
8. The order from West to East: Soda Springs, Rock River, Lexington, Columbus, Ames, and Rock Falls.

GRADE 9

1. 131
2. 15
3. 14 lbs. 12 oz
4. 312
5. 116.7
6. 45
7. 6
8. Lexington

1. $1000(26\% - 12.9\%) = 1000(13.1\%) = 131$
2. $(a + c + e) + (b + d) = 31 + (b + d) = 49$; Thus, $b + d = 18$. Then $a + 18 = 22$; $a = 4$. $a + c + e = 4 + 12 + e = 31$ yielding $e = 15$.
3. $531 + 837 + 756 = 2124$ pennies. $2124 / 9 = 236$ ounces; $236 / 16$ gives 14 pounds 12 ounces
4. 660, 672, 684, 696 are divisible by 12; Thus, $60 + 72 + 84 + 96 = 312$

5. $(500)(300) / 45000 =$ lead of $10/3$ pencils; $(10/3)(35) = 350/3$ or approximately 116.7 miles
6. 101, 102, . . . , 109 for 9 #'s; 112, 113, . . . , 119 for 8 #'s; 123, 124, . . . 129 for 7 #'s; This pattern continues until there is one number in the 180's. Thus, $9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1 = 45$
7. 1:25, 2:16, 3:43, 5:12, 7:29, 10:00 for 6 times
8. The order from West to East: Soda Springs, Rock River, Lexington, Columbus, Ames, and Rock Falls.