	2012-2013 6TH GRADE CONTEST SOLUTIONS	Answers
26.	There was sunny weather on 12 of 30 days last month; then on 18 days the weather was not sunny. Since $18 \div 30 = 0.6$, that's 60%.	26. C
	A) 36% B) 40% C) 60% D) 64%	
27.	Since $$24 \div $0.80 = 30$ and $$24 \div $1.20 = 20$, I bought 50 magnets for \$48. Thus, the average cost per magnet was $$48 \div 50 = 0.96 .	27. B
	A) \$0.92 B) \$0.96 C) \$1.00 D) \$1.04	
28.	The average of 1.75 and 7.25 is equidistant from them. The average is $(1.75 + 7.25) \div 2 = 4.5$.	28. D
	A) 2.75 B) 3.25 C) 3.75 D) 4.5	
29.	$2^3 \times 3^4 \times 4^5 \times 6^7 \times 9^{10} = 2^3 \times 3^4 \times 2^{10} \times (2^7 \times 3^7) \times 3^{20} = 2^{3+10+7} \times 3^{4+7+20}.$	29.
	A) $2^{15} \times 3^{21}$ B) $2^{20} \times 3^{31}$ C) $2^{15} \times 3^{40}$ D) $2^{105} \times 3^{280}$	В
30.	The ratio of red cars to black cars is $8:5 = 24:15$; the ratio of black cars to white cars is $3:4 = 15:20$. The minimum number of cars is $24 + 15 + 20 = 59$.	30. В
	A) 20 B) 59 C) 74 D) 91	
31.	The sum is $25 + 26 + + 30 = 165$. Since $165 \div 10 = 16.5$, the middle numbers are 16 and 17. The sum is $12 + 13 + + 16 + 17 + + 20 + 21$. A) 17 B) 18 C) 21 D) 26	31. C
32.	A radius of a circle with area 36π cm ² is 6 cm. The width of the rectangle is 6 cm. A diameter of the circle is 12 cm, so the length of the rectangle is 24 cm. The perimeter of the rectangle is $2 \times (6 + 24) = 60$ cm.	32. A
	A) 60 cm B) 90 cm C) 144 cm D) 172 cm	
33.	For every 3 numbers left, one multiple of 4 was removed. Since $2345 \div 3 = 781$ R2, 781 multiples of 4 were removed. Since there is a remainder of 2, the last number in the list was $4 \times 781 + 2 = 3126$.	33. A
	A) 3126 B) 3127 C) 3129 D) 3130	
34.	Each day I loaded 90 boxes instead of 120, I was 30 boxes short. If I were on schedule, I would need to load 720 boxes the last 6 days. I had to	34. C
	load 480 extra boxes. Since $480 \div 30 = 16$, I had 16 + 6 = 22 days to finish this temporary job. A) 10 B) 16 C) 22 D) 26	
35.	Working backwards, I counted 2/3 the number of leaves on each previous day. So on Sunday, I counted $(2/3)^5 \times 2430 = 320$ leaves.	35. D
	A) 160 B) 240 C) 280 D) 320	
	The end of the contest	ä 6
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Steven R. Conrad, Daniel Flegler, and Adam Raichel, contest authors

Information & Solutions

2012-2013 Annual 6th Grade Contest

Tuesday, February 26 (alternate date: February 19), 2013

Directions for Grading

- **Security and Solutions** *Do not look at these solutions until after the contest.* Detailed solutions appear in each question box, and letter answers are in the *Answers* columns on the right. You may copy this solution key and give a copy to every student who took this contest.
- **Urgent Questions?** For appeals or answers to urgent questions, write to comments@mathleague.com or call 1-201-568-6328.
- **Scores** Please remember that *this is a contest, and not a test* there is no "passing" or "failing" score. Few students score as high as 28 points (80% correct). Students with half that, 14 points, should be commended.
- Awards & Results The original contest package contained 5 Certificates of Merit—1 each for the 3 highest scoring students on the contest, plus extras for ties. Do you need more Certificates of Merit? If so, include your name, school, and school mailing address in a letter to: Math Certificates, P.O. Box 17, Tenafly, NJ 07670-0017, and include a self-addressed, stamped envelope (three 1st Class stamps req'd.) large enough to hold certificates. Only scores submitted to our Internet Score Report Center by Tues., March 5, 2013 can be used in our Summary of Contest Results newsletter, which will be posted online no later than Fri., April 12, 2013.
- Return of Student Papers Originals of contest papers with scores of 30 or more *must* be held until June 1. Copies of these papers, and originals of all other papers, should be returned to students after grading. Students scoring 30 points or more must confirm an *understanding* of the contest rules by signing the Selected Math League Rules (on the colored sheet of information and rules that accompanied the contests). Keep this signed sheet with the original contests until June 1. Please do not mail these to the League unless we ask you to do so.

Eighteen books of past contests, *Grades 4*, 5, & 6 (*Vols. 1*, 2, 3, 4, 5, 6), *Grades 7 & 8 (Vols. 1*, 2, 3, 4, 5, 6), and *High School (Vols. 1*, 2, 3, 4, 5, 6), are available, for \$12.95 per volume, from Math League Press, P.O. Box 17, Tenafly, NJ 07670-0017.

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201	2-2013 6TH GRA	DE CONTEST SOLL	JTIONS	Answers
1. Pete the pilot f	lew 28 times last nts were at night			1.
	hts were not at i			A
A) 7 B) 2	1 C) 28	D) 49		
2. The sum 12 + 3	4 + 56 equals ea	ch of the		2.
following <i>excep</i>		S		D
A) 46+56 C) 34+68	B) 12+90D) 46+68			
,	,	in my backpack a	and add 5, I get 23.	3.
Subtract 5 and	divide by 2 to ge	$et(23-5) \div 2 = 9.$		A
A) 9	B) 14	C) 36	D) 56	
4. Distribute subt	raction over add	lition: 65 – (43 + 2	(1) = (65 - 43) - 21.	4.
A) 1	B) 12	C) 21	D) 34	С
		th 35¢. One dime s in my pocket are	less than \$1 is 90¢. e worth 55¢.	5. B
A) 45¢	B) 55¢	C) 65¢	D) 75¢	
6. Five days befor	re Wednesday is	s Friday.		6.
A) Friday	B) Sunday	C) Monday	D) Tuesday	А
7. Since each choi	ce is odd, 2 mus	st be one of the ad	dends.	7.
A) $11 = 2 + 9$	B) $17 = 2 + 15$	5 C) 23 = 2 + 2	1 D) 31 = 2 + 29	D
8. Each of my sho together, then			oes weigh 12 kg is 6×12 kg = 72 kg.	8. D
A) 2 kg	B) 24 kg	C) 36 kg	D) 72 kg	
9. $25 \times 25 = 5 \times 5$	× 25.			9.
A) 2	B) 5	C) 10	D) 25	D
10. (6×12) + (12×	$2) = 96 = 32 \times 3$			10.
A) 48 B) 32	2 C) 24	D) 12	- (5)	B
11. Since 31 divided Giggles the Clor on his costume	wn could have a			11. A
A) 31 B) 32	2 C) 33	D) 34		
12. 420 minutes = 7	hrs.; 7 hrs. befor	re 4 P.M. is 9 A.M.		12.
A) 4:00 A.M.	B) 7:00 A.	M.		С
C) 9:00 A.M.	D) 11:40 A	M.)
13. (10 x 100) + (10	x 10) + 10 = 1110	0.		13. C
A) 111 B) 1	101 C) 1110	D) 101010		
		C	Go on to the next page)	₩ 6

	2012-2013 61H GK	ADE CONTEST SOLU	TIONS	Answe
4.	Professor Quack had 7 more st than he had last year. Subtract choice and then add the result to see if you get $43: (25 - 7) + 25$	7 from each to that choice		14. В
	A) 18 B) 25 C) 32	D) 36		
5.	In all, 27 trapezoids have 4×27 sid 3×36 sides, the same number as A) 16 B) 18 C) 27			15. D
6.	There are 6 roses for every 5 da garden, so $6/(6+5) = 6/11$ of the have are roses. Thus, $6/11 \times 66$	aisies in my e 66 flowers I		16. D
	A) 11 B) 22 C) 30	D) 36		
7.	The sum of two different odd nur	mbers and an even nu	umber must be even.	17.
	A) 52 B) 61	C) 65	D) 77	A
8.	On a Sunday I put two rabbits the cage doubled every day, th bits, 32 rabbits, 64 rabbits, 128	en I had 4 rabbits, 8		18. C
	A) Thursday B) Friday	C) Saturday	D) Sunday	
9.	A pomegranate costs as much as 4 pawpaws. If 1 pomegranate costs 50¢ more than 2 pawpaws, then 2 pawpaws cost 50¢ and 4 cost \$1.			
	A) 50¢ B) 75¢	C) \$1	D) \$1.50	C
Λ				
υ.	Work backwards: $6 \times 18 = 108$;	$108 \div 3 = 36.$		20.
υ.	Work backwards: 6×18 = 108; A) 9 B) 36	108 ÷ 3 = 36. C) 72	D) 108	20. B
		C) 72	,	
1.	A) 9 B) 36 The given sum = $11+(12+10)+(12+10$	C) 72 13+20)+(14+30)+(15+ C) 150 7 3, and add 3 jumps oice, then it's correct	+40)+(16+50) - 150. D) 200	B 21. C 22.
1.	A) 9 B) 36 The given $sum = 11+(12+10)+(12+$	C) 72 13+20)+(14+30)+(15+ C) 150 7 3, and add 3 jumps oice, then it's correct ce A is correct. D) 24 imes is \$1.40. The	+40)+(16+50) – 150. D) 200	B 21. C 22. A 23.
1. 2. 3.	A) 9B) 36 The given sum = 11+(12+10)+(12+10)+(12+10)+(12+10)A) 50B) 100 Add 15 to each choice, divide by If the result is the same as the ch Since $(12+15) + 3 + 3 = 12$, choiA) 12B) 18C) 21The value of 10 nickels and 9 di value of 5 quarters is \$1.25, and	C) 72 13+20)+(14+30)+(15+ C) 150 7 3, and add 3 jumps oice, then it's correct ce A is correct. D) 24 imes is \$1.40. The \$1.40 - \$1.25 = 15¢. D) 15 mes digit of 5. The	+40)+(16+50) – 150. D) 200	B 21. C 22. A 23.
1. 2. 3. 4.	A) 9 B) 36 The given $sum = 11+(12+10)+(12+$	C) 72 13+20)+(14+30)+(15+ C) 150 7 3, and add 3 jumps oice, then it's correct ce A is correct. D) 24 imes is \$1.40. The \$1.40 - \$1.25 = 15¢. D) 15 nes digit of 5. The 95. There are 10. D) 19	+40)+(16+50) – 150. D) 200	B 21. C 22. A 23. D 24.