
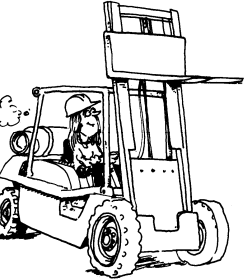



<p>26. There was sunny weather on 12 of 30 days last month; then on 18 days the weather was not sunny. Since <math>18 \div 30 = 0.6</math>, that's 60%.</p> <p>A) 36%   B) 40%   C) 60%   D) 64%</p>		<p>26. C</p>
<p>27. Since <math>\\$24 \div \\$0.80 = 30</math> and <math>\\$24 \div \\$1.20 = 20</math>, I bought 50 magnets for \$48. Thus, the average cost per magnet was <math>\\$48 \div 50 = \\$0.96</math>.</p> <p>A) \$0.92   B) \$0.96   C) \$1.00   D) \$1.04</p>		<p>27. B</p>
<p>28. The average of 1.75 and 7.25 is equidistant from them. The average is <math>(1.75 + 7.25) \div 2 = 4.5</math>.</p> <p>A) 2.75   B) 3.25   C) 3.75   D) 4.5</p>	<p>28. D</p>	
<p>29. <math>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}</math>.</p> <p>A) <math>2^{15} \times 3^{21}</math>   B) <math>2^{20} \times 3^{31}</math>   C) <math>2^{15} \times 3^{40}</math>   D) <math>2^{105} \times 3^{280}</math></p>	<p>29. B</p>	
<p>30. The ratio of red cars to black cars is <math>8:5 = 24:15</math>; the ratio of black cars to white cars is <math>3:4 = 15:20</math>. The minimum number of cars is <math>24 + 15 + 20 = 59</math>.</p> <p>A) 20   B) 59   C) 74   D) 91</p>	<p>30. B</p>	
<p>31. The sum is <math>25 + 26 + \dots + 30 = 165</math>. Since <math>165 \div 10 = 16.5</math>, the middle numbers are 16 and 17. The sum is <math>12 + 13 + \dots + 16 + 17 + \dots + 20 + 21</math>.</p> <p>A) 17   B) 18   C) 21   D) 26</p>	<p>31. C</p>	
<p>32. A radius of a circle with area <math>36\pi \text{ cm}^2</math> 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 <math>2 \times (6 + 24) = 60</math> cm.</p> <p>A) 60 cm   B) 90 cm   C) 144 cm   D) 172 cm</p>	<p>32. A</p>	
<p>33. For every 3 numbers left, one multiple of 4 was removed. Since <math>2345 \div 3 = 781 \text{ R}2</math>, 781 multiples of 4 were removed. Since there is a remainder of 2, the last number in the list was <math>4 \times 781 + 2 = 3126</math>.</p> <p>A) 3126   B) 3127   C) 3129   D) 3130</p>	<p>33. A</p>	
<p>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 load 480 extra boxes. Since <math>480 \div 30 = 16</math>, I had <math>16 + 6 = 22</math> days to finish this temporary job.</p> <p>A) 10   B) 16   C) 22   D) 26</p>		<p>34. C</p>
<p>35. Working backwards, I counted <math>\frac{2}{3}</math> the number of leaves on each previous day. So on Sunday, I counted <math>(\frac{2}{3})^5 \times 2430 = 320</math> leaves.</p> <p>A) 160   B) 240   C) 280   D) 320</p>		<p>35. D</p>

The end of the contest  6

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## Information & Solutions

### 2012-2013 Annual 6th Grade Contest

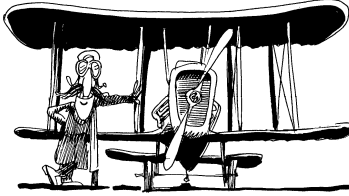

Tuesday, February 26 (alternate date: February 19), 2013



# 6

#### 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](mailto: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.

1. Pete the pilot flew 28 times last month. If 21 of his flights were at night, then $28 - 21 = 7$ flights were not at night. A) 7    B) 21    C) 28    D) 49		1.
		A
2. The sum $12 + 34 + 56$ equals each of the following <i>except</i> choice D. A) $46 + 56$ B) $12 + 90$ C) $34 + 68$ D) $46 + 68$		2.
		D
3. If I double the number of pens in my backpack and add 5, I get 23. Subtract 5 and divide by 2 to get $(23 - 5) \div 2 = 9$ . A) 9    B) 14    C) 36    D) 56		3.
		A
4. Distribute subtraction over addition: $65 - (43 + 21) = (65 - 43) - 21$ . A) 1    B) 12    C) 21    D) 34		4.
		C
5. One dime and quarter are worth 35¢. One dime less than \$1 is 90¢. Since $90¢ - 35¢ = 55¢$ , the coins in my pocket are worth 55¢. A) 45¢    B) 55¢    C) 65¢    D) 75¢		5.
		B
6. Five days before Wednesday is Friday. A) Friday    B) Sunday    C) Monday    D) Tuesday		6.
		A
7. Since each choice is odd, 2 must be one of the addends. A) $11 = 2 + 9$ B) $17 = 2 + 15$ C) $23 = 2 + 21$ D) $31 = 2 + 29$		7.
		D
8. Each of my shoes weighs the same. If 2 of my shoes weigh 12 kg together, then the total weight of 12 of my shoes is $6 \times 12 \text{ kg} = 72 \text{ kg}$ . A) 2 kg    B) 24 kg    C) 36 kg    D) 72 kg		8.
		D
9. $25 \times 25 = 5 \times 5 \times 25$ . A) 2    B) 5    C) 10    D) 25		9.
		D
10. $(6 \times 12) + (12 \times 2) = 96 = 32 \times 3$ . A) 48    B) 32    C) 24    D) 12		10.
		B
11. Since 31 divided by 4 has a remainder of 3, Giggles the Clown could have a total of 31 dots on his costume. A) 31    B) 32    C) 33    D) 34		11.
		A
12. 420 minutes = 7 hrs.; 7 hrs. before 4 P.M. is 9 A.M. A) 4:00 A.M.    B) 7:00 A.M. C) 9:00 A.M.    D) 11:40 A.M.		12.
		C
13. $(10 \times 100) + (10 \times 10) + 10 = 1110$ . A) 111    B) 1101    C) 1110    D) 101010		13.
		C

14. Professor Quack had 7 more students this year than he had last year. Subtract 7 from each choice and then add the result to that choice to see if you get 43: $(25 - 7) + 25 = 43$ . A) 18    B) 25    C) 32    D) 36		14.
		B
15. In all, 27 trapezoids have $4 \times 27 \text{ sides} = 108 \text{ sides} = 3 \times 36 \text{ sides}$ , the same number as in 36 triangles. A) 16    B) 18    C) 27    D) 36		15.
		D
16. There are 6 roses for every 5 daisies in my garden, so $6/(6 + 5) = 6/11$ of the 66 flowers I have are roses. Thus, $6/11 \times 66 = 36$ are roses. A) 11    B) 22    C) 30    D) 36		16.
		D
17. The sum of two different odd numbers and an even number must be even. A) 52    B) 61    C) 65    D) 77		17.
		A
18. On a Sunday I put two rabbits in a cage. If the number of rabbits in the cage doubled every day, then I had 4 rabbits, 8 rabbits, 16 rabbits, 32 rabbits, 64 rabbits, 128 rabbits, .... A) Thursday    B) Friday    C) Saturday    D) Sunday		18.
		C
19. 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		19.
		C
20. Work backwards: $6 \times 18 = 108$ ; $108 \div 3 = 36$ . A) 9    B) 36    C) 72    D) 108		20.
		B
21. The given sum = $11 + (12 + 10) + (13 + 20) + (14 + 30) + (15 + 40) + (16 + 50) - 150$ . A) 50    B) 100    C) 150    D) 200		21.
		C
22. Add 15 to each choice, divide by 3, and add 3 jumps. If the result is the same as the choice, then it's correct. Since $(12 + 15) \div 3 + 3 = 12$ , choice A is correct. A) 12    B) 18    C) 21    D) 24		22.
		A
23. The value of 10 nickels and 9 dimes is \$1.40. The value of 5 quarters is \$1.25, and $\$1.40 - \$1.25 = 15¢$ . A) 4    B) 5    C) 14    D) 15		23.
		D
24. Any odd multiple of 5 has a ones digit of 5. The numbers are 5, 15, 25, . . . , 85, 95. There are 10. A) 9    B) 10    C) 11    D) 19		24.
		B
25. The remainders are 3, 4, and 1; their sum is 8. A) 3    B) 6    C) 8    D) 12		25.
		C