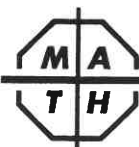
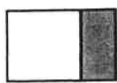
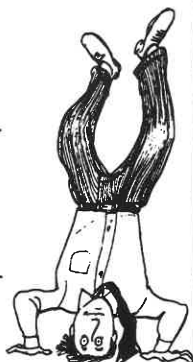


26. Subtract by a large multiple of 8 to quickly count down by 8s to be near choices given: $777 - 640 = 137$. Subtract 8 again: $137 - 8 = 129$.
A) 123 B) 125 C) 127 D) 129
27. Five apples cost $5 \times 15\text{¢}$ more than 5 pears, so 1 pear costs 75¢. The cost of 5 apples and 6 pears = the cost of 12 pears, so the cost is $12 \times 75\text{¢} = \$9$.
A) \$3 B) \$6 C) \$9 D) \$18
28. The desired difference is $(1 \times 3 \times 9 \times 27) - 27 = (27 \times 27) - (1 \times 27) = (27 - 1) \times 27 = 26 \times 27$.
A) 2 B) 27 C) 2×27 D) 26×27
29. Since $2^6 < 100 < 2^7$, the prime factorization of a whole number less than 100 is the product of at most 6 primes.
A) 3 B) 4 C) 5 D) 6
30. If the shaded rectangle is 8 by 1, then the square is 8 by 8 and the entire figure is 8 by 9. The area of the entire figure is then $8 \times 9 = 72$. No greater area is possible.
A) 24 B) 64 C) 72 D) 81
31. The 1st letter Gabriel wrote was G, and every 7th letter after was G. The 99th letter he wrote was G, and the 100th was an "a."
A) a B) b C) r D) i
32. At the end of year 1, I had \$110. At the end of year 2, I had \$121. At the end of year 3, I had \$133.10. At the end of year 4, I had \$146.41. At the end of year 5, I had (to the nearest dollar) \$161.
A) \$162 B) \$161 C) \$160 D) \$150
33. Mrs. Andrews' 200 6-kg bags contain a total of 1200 kg of seed. One-fourth of this is sunflower seed, so $1200 \text{ kg} \div 4 = 300 \text{ kg}$ is sunflower seed. If sunflower seed comes in 12-kg bags, she needs $300 \div 12 = 25$ such bags.
A) 25 B) 34 C) 50 D) 67
34. The product of 100 100s is 100^{100} . This is the same as $100^{99} \times 100^1$ or the sum of 100^{99} 100s.
A) 100^{100} B) 100^{99} C) 100^{10} D) 100^2
35. $5^{21} \times 4^{11} \div 2 = 5^{21} \times 2^{22} \div 2^1 = 5^{21} \times 2^{21} = (5 \times 2)^{21} = 10^{21}$.
A) 10^{11} B) 10^{21} C) 10^{22} D) 10^{23}



Information & Solutions

Tuesday, February 17 or 24, 2015

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Contest Information

- **Solutions** Turn the page for detailed contest solutions (written in the question boxes) and letter answers (written in the *Answer Column* to the right of each question).
- **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, *deserve commendation!*
- **Answers and Rating Scales** Turn to page 151 for the letter answers to each question and the rating scale for this contest.



1.	A	Three cases of 24 cans each = 3×24 cans = 72 cans = 12×6 cans = twelve boxes of 6 cans each.
2.	A	A trapezoid has 4 sides.
3.	B	Abby put an X through 7 of the 28 days in this month. Abby put an X through $7 \div 28 = 0.25$ days.
4.	D	$60 \div 4 = 15 = 3 \times 5$.
5.	C	$30 \times 40 \times 50 = (3 \times 10) \times (40 \times 50) = (3 \times 40) \times 10 \times 50 = 120 \times 500$.
6.	C	There are $24 \div 4 = 6$ groups of 4 students. In each of these groups, 3 students have brown eyes. In all, 6×3 students have brown eyes.
7.	C	The side-length of each small square is $36 \div 4 = 9$. The side-length of the large square is 18. Its perimeter is $4 \times 18 = 72$.
8.	B	$80 + (160 + 240) \div 4 = 80 + (40 + 60) = 40 + 80 + (120 \div 2)$.
9.	A	The remainders are (in order) 7, 3, 3, and 4.
10.	D	Since $14 = 7 \times 2$, 7 is a factor of the product.
11.	C	Thok spends 12 hours of the day in the cave. Of the remaining 12 hours, he spends 3 hours on the hunt. That leaves $12 - 3 = 9$ hours remaining to watch films.
12.	D	$(2 \times 3) \times 6 \times 6^2 \times (2 \times 3) \times 6 \times 6^2 = 6^8$.
13.	A	The total value of my 15 coins is $5c + 20c + 75c + 1 + \$1 = \3.00 . The average value of one of my coins is $\$3.00 \div 15 = \0.20 .



14.	C	Wyatt weighs as much as 2 hats. His sheep weighs as much as 4 hats. In all, Wyatt, his sheep, and his hat weigh as much as 7 hats. If 7 hats weigh 210 kg, 1 hat weighs 30 kg and 2 hats (same as Wyatt) weigh 60 kg.
15.	A	The lcm of 24 and 30 is 120. The gcd of 24 and 30 is 6. Their difference is 114.
16.	D	Of two consecutive whole numbers, one is odd and the other even. Their sum is odd.
17.	B	The greatest prime factor of $(2 \times 2 \times 3 \times 5) \times (2 \times 2 \times 3) \times 7$ is 7.
18.	B	By the distributive prop., $(12+34) \times (56+78) = 12 \times (56+78) + 34 \times (56+78)$.
19.	C	Seth eats an apple at 4 P.M. on Monday. Since $100 \div 24 = 4R4$, it's 4 days and 4 hours later or 8 P.M. on Friday when he eats another one.
20.	D	If 2 flocks = 5 flecks, then 500 flocks = 250×2 flocks = 250 \times 5 flecks.
21.	D	$(\sqrt{64} + \sqrt{64})^2 = (8 + 8)^2 = (16)^2 = 256$.
22.	A	Since $70 + 60 + 50 = 180$, the largest angle in the triangle is 70° .
23.	D	Rob rode at an average rate of $30 \text{ km/h} = 30000 \text{ m/60 min} = 500 \text{ m/min}$.
24.	B	Since $65:100 = 13:20$, Clara will lay a total of 20 eggs. She has laid 13 eggs; 7 eggs are left to be laid.
25.	A	The average value (which in this case is also the middle number) is $182 \div 7 = 26$. The three preceding numbers are 24, 22, and 20.

