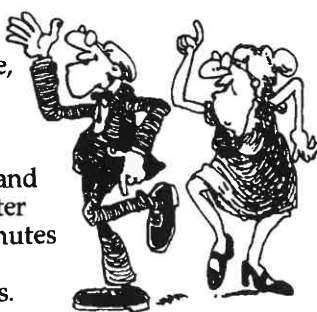


29. $10^{12} = 2^{12} \times 5^{12} = (2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2) \times (5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5)$, the product of 24 primes. A) 20 B) 24 C) 48 D) 50	29. B
30. Al rode 48 km in 1.5 hrs. His rate was $48 \text{ km} \div 1.5 \text{ hrs.} = 32 \text{ km/hr}$. A) 8 km/hr B) 16 km/hr C) 32 km/hr D) 64 km/hr	30. C
31. This can be achieved with any odd multiple of 3. Here, $99 = 31 + 33 + 35$. A) 100 B) 99 C) 98 D) 97	31. B
32. $20\% \text{ of } 0.5\% = 0.2 \times 0.5\% = 0.10\% = 0.1\%$. A) 0.1% B) 1% C) 10% D) 10	32. A
33. $\frac{1}{2} \div \frac{2}{3} = \frac{1}{2} \times \frac{3}{2} = \frac{3}{4}$, and $\frac{2}{3} \times \frac{9}{8} = \frac{3}{4}$. A) 2 B) $\frac{9}{8}$ C) $\frac{3}{4}$ D) $\frac{1}{2}$	33. B
34. The even #s are 2 times any of 1, 3, 5, 7, 3×5 , 3×7 , 5×7 , or $3 \times 5 \times 7$. A) 1 B) 6 C) 7 D) 8	34. D
35. If I earn \$100, you earn \$0.50. I earn 200 times = $200 \times 100\%$ as much. A) 2 B) 200 C) 2000 D) 20 000	35. D
36. Simplify to get $\frac{1}{2} \times \frac{2}{3} \times \frac{3}{4} \times \dots \times \frac{98}{99} \times \frac{99}{100}$. A lot cancels! A) $\frac{1}{100}$ B) $\frac{1}{99}$ C) $\frac{9}{10}$ D) $\frac{99}{100}$	36. A
37. (Al's age):(Ed's age) = $3:5 = 6:10 = 9:15 = \dots = 27:45 = \dots$ A) 62 B) 72 C) 82 D) 92	37. B
38. $9^3 = 3 \times 3 \times 3 \times 3 \times 3 \times 3 = 27^2$. Side-lengths could be 27 and area 27^2 . A) 7^3 B) 8^3 C) 9^3 D) 10^3	38. C
39. If 15 do both, 5 only sing, 5 only dance, and $50 - 15 - 5 - 5 = 25$ do neither. A) 5 B) 10 C) 15 D) 25	39. D
40. They danced for 20 minutes on day 1 and $(20 + 91)$ minutes on day 92 (91 days after day 1). The average is $(20 + 111) \div 2$ minutes per day. They danced for 92 days \times 65.5 minutes per day = 6026 minutes. A) 1820 B) 5106 C) 6026 D) 6072	40. C



Information & Solutions

Tuesday, February 17 or 24, 2009

Contest Information

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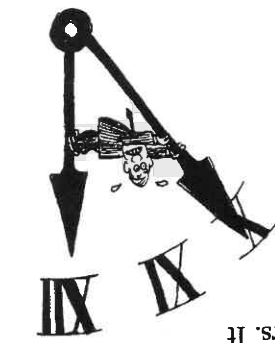
- **Solutions** Turn the page for detailed contest solutions (written in the question boxes) and letter answers (written in the *Answers* column to the right of each question).
- **Scores** Please remember that *this is a contest, not a test*—and there is no “passing” or “failing” score. Few students score as high as 30 points (75% correct). Students with half that, 15 points, *deserve commendation!*
- **Answers & Rating Scale** Turn to page 140 for the letter answers to each question and the rating scale for this contest.



The end of the contest 7

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1.	D	A) 50 B) 95 C) 96 D) 100
2.	B	A) 1 B) 2 C) 3 D) 4
3.	B	A) 1 B) 2 C) 3 D) 6
4.	C	A) 365.00 B) 365.10 C) 365.25 D) 365.75
5.	A	A) 25 B) 75 C) $\frac{400}{1}$ D) $\frac{3600}{1}$
6.	C	A) 1 B) 3 C) 6 D) 9
7.	B	A) 1246 B) 2412 C) 4664 D) 6424
8.	C	A) 1111 B) 1110 C) 1000000 D) 111000000
9.	A	A) 9^2 B) 99 C) $9 + 9^2$ D) 9^3
10.	D	A) 2 B) 3 C) 4 D) 5
11.	C	A) \$15 B) \$30 C) \$50 D) \$65
12.	A	A) even B) odd C) whole D) 1
13.	D	A) 18 B) 2^2 C) 3^2 D) 6^2
14.	A	A) $\frac{1}{100}$ B) $\frac{1}{8}$ C) $\frac{100}{64}$ D) $\frac{10}{8}$



15.	B	Each \angle of an equilateral \triangle is 60° . Since $m\angle BCD = m\angle BCA + m\angle ACD$, $m\angle BCD = 60 + 60 = 120$.
16.	D	From 3:15 PM, to 4:30 PM, is 75 mins. Walking uphill took twice as long as walking downhill. We walked uphill 50 mins, and downhill 25 mins. We began to walk downhill at 3:15 + 50 mins. = 4:05 PM.
17.	A	A) 100 000 B) 10 000 C) 1000 D) 100
18.	B	A) 33 000 B) 3000.03 C) 3000.003 D) 0.330
19.	D	A) 24 B) 24^2 C) 24^3 D) 24^4
20.	A	$\sqrt{16} \times (\sqrt{8} \times \sqrt{2}) \times \sqrt{4} = (\sqrt{16} \times \sqrt{16}) \times 2 = 16 \times 2$.
21.	D	Here, do addition last: $12 + [(72 \div 6) \times 2] = 12 + [12 \times 2] = 12 + 24 = 36$.
22.	D	A) $\frac{11}{10} + \frac{10}{101} + \frac{1001}{1000} = \frac{1100}{1000} + \frac{1000}{1000} + \frac{1001}{1000} = \frac{3111}{1000}$
23.	A	A) 16 B) 12 C) 4 D) 2
24.	B	20% of 30 = $0.2 \times 30 = 6 = 0.1 \times 60 = 10\%$ of 60.
25.	D	A) 5 B) 15 C) 20 D) 30
26.	C	Area = $x \times r^2 = x$, so $r = 1$. Diameter = $2 \times r = 2 \times 1 = 2$.
27.	A	A) $\frac{5}{2}$ B) $\frac{3}{2}$ C) $\frac{2}{3}$ D) $\frac{2}{5}$
28.	B	The polygons could be a square (4 sides) and a hexagon (6 sides). (A) a pentagon (B) a hexagon (C) an octagon (D) a decagon

