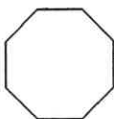
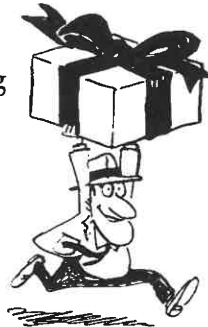


30. A circle can pass through 1, 2, or 4 of a square's vertices, not just 3. A) 4 B) 3 C) 2 D) 1	30. B
31. $\frac{7}{8}$ is nearly 1, whereas $\frac{8}{17} < \frac{1}{2}$ and $\frac{6}{11} > \frac{1}{2}$ are clearly smaller. A) $\frac{7}{8} < \frac{8}{17} < \frac{6}{11}$ B) $\frac{6}{11} < \frac{8}{17} < \frac{7}{8}$ C) $\frac{6}{11} < \frac{7}{8} < \frac{8}{17}$ D) $\frac{8}{17} < \frac{6}{11} < \frac{7}{8}$	31. D
32. Face of large cube: area = $9600/6 = 1600$; edge = $\sqrt{1600} = 40$. Face of small cube: area = $96/6 = 16$; edge = 4 ; $40^3 \div 4^3 = 1000$. A) 10 B) 100 C) 1000 D) 10000	32. C
33. To buy a \$45 gift, I paid 25% or \$11.25, leaving \$33.75. Each of my 5 payments is $\$33.75 \div 5$. A) \$6.75 B) \$7.25 C) \$9.00 D) \$11.25	33. A
34. If $N = 2$, only $N+7 = 9$ is not a prime number. A) $N+3$ B) $N+5$ C) $N+7$ D) $N+9$	34. C
35. $(2 \times \frac{1}{3}) \times (4 \times \frac{1}{5}) \times \dots \times (48 \times \frac{1}{49}) < 1$ since each subproduct < 1 . A) < 1 B) > 1 C) $= 1$ D) $= 0$	35. A
36. Since 120 kids have a cat, 300 have a dog, and 65 have both, $120 - 65 = 55$ have only a cat and $300 - 65 = 235$ have only a dog. Hence, $400 - (55 + 235 + 65) = 45$ have neither pet. A) 45 B) 98 C) 129 D) 335	36. A
37. $(2 \times 2 \times 2)^8 \times (2 \times 2)^4 \times 2^2 = 2^{8+8+8+4+4+2} = 2^{34}$. A) 2^{64} B) 2^{34} C) 2^{26} D) 2^{14}	37. B
38. $\sqrt{\sqrt{100 \times 100 \times 100 \times 100}} = \sqrt{\sqrt{100 \times 100}} = \sqrt{100} = 10$. A) 1 B) $\sqrt{10}$ C) 10 D) 100	38. C
39. Every 360° , each side returns to its original position. Next, 1575° is 135° more than $4 \times 360^\circ = 1440^\circ$. The extra 135° is $\frac{3}{8}$ of 360° , so each side moves 3 positions clockwise, and side 8 ends where side 3 began. A) side 2 B) side 4 C) side 6 D) side 8	39. D
40. I swam 58 laps on May 16, the middle day of May. I swam 1 less lap each day before this, so I swam $58 - 15 = 43$ laps on May 1. A) 42 B) 43 C) 44 D) 45	40. B



The end of the contest 7



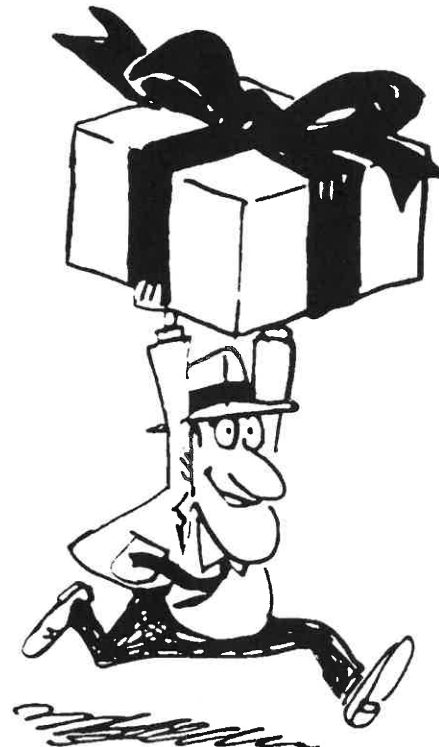
Information & Solutions

Tuesday, February 19 or 26, 2008

Contest Information

7

- 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 139 for the letter answers to each question and the rating scale for this contest.



1.	D	$(10 \times 2008) + (1 \times 2008) = (10+1) \times 2008 = 11 \times 2008$ A) 4026 B) 10×2009 C) 10×4016 D) 11×2008
2.	C	$30¢ = 10¢ + 10¢ + 10¢$ $40¢ = 5¢ + 10¢ + 25¢$ $60¢ = 10¢ + 25¢ + 25¢$ No 3 coins total 50¢ in value. A) 30 B) 40 C) 50 D) 60
3.	B	Since 8 is already a multiple of both 2 and 4, the lcm is 8. A) 2 B) 8 C) 14 D) 64
4.	A	$0.10 + 0.10 = 0.20 = 0.200$ A) 0.200 B) 0.020 C) 0.110 D) 0.100
5.	B	Since $5 \times 7 = 35$, the numbers are 5 and 7. Their sum is $5 + 7 = 12$. A) 8 B) 12 C) 18 D) 36
6.	D	Only in D do we add the 1. Multiplying by 1 has no effect. A) $0.1 \times 1.1 \times 1$ B) $0.1 + 1.1 \times 1$ C) $1.1 + 0.1 \times 1$ D) $0.1 + 1.1 + 1$
7.	B	$20 \text{ cm} \div 1\frac{1}{4} \text{ cm} = 16$. A) 15 B) 16 C) 18 D) 25
8.	A	The average of my 3 tests is 90, so their sum is $3 \times 90 = 270$. A) 270 B) 180 C) 90 D) 30
9.	B	The length of each side of this pool is 6 m, the square root of 36 m^2 . The perimeter of this pool is $4 \times 6 \text{ m} = 24 \text{ m}$. A) 18 m B) 24 m C) 36 m D) 81 m
10.	A	If Dan lives on a line between Al and Bob, Dan is 4 km from Bob and 1 km from Al. A) 1 km B) 2 km C) 3 km D) 4 km
11.	D	The ratio is $(24/1):(1/24) = (24/1) \times (24/1) = 576/1 = 576:1$. A) 1:24 B) 24:1 C) 48:1 D) 576:1
12.	C	58 = 2×29 , and 29 is prime, so 58 has the largest prime factor. A) $49 = 7 \times 7$ B) $51 = 3 \times 17$ C) $58 = 2 \times 29$ D) $65 = 5 \times 13$
13.	D	$\frac{1}{1}$ of $\frac{3}{1} = \frac{3}{1} \times \frac{1}{1} = \frac{3}{1} \times \frac{3}{3} = \frac{3}{1} \times \frac{3}{1} = \frac{9}{1}$ of $\frac{2}{1}$. A) $\frac{6}{1}$ B) $\frac{4}{1}$ C) $\frac{3}{1}$ D) $\frac{2}{1}$
14.	B	The product of 4 and 4^2 is $4 \times 16 = 64$. A) 2 B) 4 C) 6 D) 8
15.	C	The ten integers between $1\frac{1}{9}$ and $11\frac{1}{9}$ are 2, 3, ..., 10, 11. A) 8 B) 9 C) 10 D) 90



16.	C	$\sqrt{9} + \sqrt{16} = 3 + 4 = 7 = 5 + 2 = \sqrt{25} + \sqrt{4}$. A) $\sqrt{0}$ B) $\sqrt{2}$ C) $\sqrt{4}$ D) $\sqrt{49}$
17.	A	Any positive number bigger than 1 will exceed its reciprocal. A) 1 B) 2 C) 3 D) 4
18.	C	4:18 PM. - 3:26 PM. = 52 minutes, so the correct answer is 52 minutes before 3:26 PM. That's 2:34 PM. A) 2:18 B) 2:32 C) 2:34 D) 2:44
19.	D	The sum of the lengths of any 2 sides must be > the 3rd side. A) 4, 5, 6 B) 3, 4, 5 C) 2, 3, 4 D) 1, 2, 3
20.	A	$\frac{31}{16} + \frac{16}{32} + \frac{16}{33} = \frac{16}{96} = \frac{16}{48}$. A) 48 B) 36 C) 16 D) 12
21.	B	$\frac{54}{36} = \frac{3}{2}$ or $\frac{6}{4}$ or $\frac{9}{6}$ or $\frac{12}{8}$ or $\frac{15}{10}$ or $\frac{18}{12}$ or $\frac{21}{14}$ or $\frac{24}{16}$. A) 6 B) 8 C) 12 D) 15
22.	D	The sum of an odd and an even number is always odd, never even. A) 1 B) prime C) odd D) even
23.	C	Use the fraction whose numerator is 12 before it's increased by 12. A) $\frac{41}{3}$ B) $\frac{41}{6}$ C) $\frac{41}{12}$ D) $\frac{41}{24}$
24.	D	A triangle whose angles measure 70° , 70° , and 40° is isosceles. A) $85^\circ, 50^\circ$ B) $80^\circ, 55^\circ$ C) $75^\circ, 35^\circ$ D) $70^\circ, 40^\circ$
25.	C	10% of 10% = $0.10 \times 0.10 = 0.01 = 1 \times 0.01 = 100\%$ of $1/100$. A) 1 B) $\frac{10}{1}$ C) $\frac{100}{1}$ D) $\frac{1000}{1}$
26.	A	10^{2008} has 2009 digits: a 1 followed by 2008 0s. A) 2009 B) 2008 C) 2007 D) 20080s
27.	B	Bob must be the average height, so his height is 150 cm. Carl is 2 cm shorter than Bob, so Carl's height is 148 cm. A) 152 B) 148 C) 147 D) 146
28.	C	The numerator is half the denominator. A) 12 B) 14 C) 26 D) 27
29.	B	$45^2 = 2025$ and $44^2 = 1936$; their difference is $2025 - 1936 = 89$. A) 88 B) 89 C) 90 D) 91

