


29. The area of a semicircle = $\pi r^2/2 = 64\pi/2 = 32\pi$ . A) $32\pi$ B) $64\pi$ C) $128\pi$ D) $256\pi$	29. A
30. $r(r(2)\div r(3)\div r(4)) = r(\frac{1}{2}\div\frac{1}{3}\div\frac{1}{4}) = r(\frac{3}{2}\div\frac{1}{4}) = r(\frac{12}{2}) = \frac{1}{6}$ . A) $\frac{2}{3}$ B) $\frac{3}{8}$ C) $\frac{1}{6}$ D) $\frac{1}{24}$	30. C
31. Cupid shot his arrow 10 000 times. His success rate was $\sqrt{1\%} = \sqrt{1/100} = 1/10$ . He succeeded $(1/10)\times 10\,000 = 1\,000$ times. A) 1    B) 10    C) 100    D) 1000	31. D
32. Every number is a factor of itself. A) 5    B) 1000    C) 5000    D) 10 000	32. D
33. There were 2 horses, $2\times 4 = 8$ cows, $8\times 8 = 64$ pigs, and $16\times 64 = 1\,024$ chickens. Altogether, the total number of animals was $2+8+64+1\,024 = 1\,098$ . A) 30    B) 512    C) 1024    D) 1098	33. D
34. With 9 sides, there can be at most 4 such pairs. For an example, we can remove a STOP sign's corner. A) 2    B) 3    C) 4    D) 8	34. C
35. Since $4\times 5\times 6\times 7\times 8$ is not divisible by 9, the correct answer must be choice B. A) 5    B) 4    C) 3    D) 2	35. B
36. Cory's test total is $15\times 85 = 1\,275$ . His known scores total 855. The other 5 scores must total $1\,275 - 855 = 420$ , an average of 84. A) 82    B) 84    C) 85    D) 86	36. B
37. Switch the divisor and quotient to get $\frac{?}{2006} = \frac{2007}{2006} \div \frac{2006}{2007} = \frac{2007^2}{2006^2}$ . A) $\frac{2007^2}{2006^2}$ B) $\frac{2006^2}{2007^2}$ C) $\frac{2\times 2006^2}{2007^2}$ D) 1	37. A
38. The lcd of $\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \frac{6}{7}, \frac{7}{8}, \frac{8}{9}$ , and $\frac{9}{10}$ is $5\times 7\times 8\times 9 = 2\,520$ . A) 10    B) 1260    C) 2520    D) 3 628 800	38. C
39. Except for 1, every positive integer is a multiple of a prime. A) 1    B) 499    C) 998    D) 999	39. C
40. There is no carryover from one column to another, so $R+S+T+U = (R+U) + (S+T) = T+T = 2\times T$ . A) $2\times(R+S)$ B) $2\times(S+U)$ C) $2\times(T+U)$ D) $2\times T$	40. D

The end of the contest  7

Visit our Web site at <http://www.mathleague.com>



## Information & Solutions

Tuesday, February 20 or 27, 2007

### 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 138 for the letter answers to each question and the rating scale for this contest.

