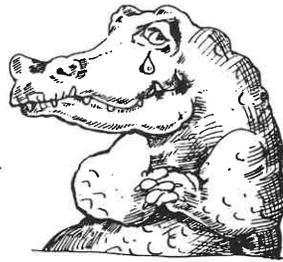


26. Craig the Croc cried at 15% of the movies he saw, so he didn't cry at 85% of them. Since 85% of the movies is 34, 100% of the movies is  $34 \div 0.85 = 40$ , and 15% is 6.

- A) 6    B) 12    C) 18    D) 40



26.

A

27. Consecutive number pairs with a different # of digits must be like (9,10), (99,100), . . . . Their product is divisible by  $3 \times 5 = 15$ .

- A) 4    B) 11    C) 15    D) 100

27.

C

28. The bookshelf contains  $18000 \div 360 = 50$  books. There are  $50 \div 5 = 10$  books on each shelf.

- A) 10    B) 50    C) 55    D) 250

28.

A

29.  $2^3 \times 2^5 \times 2^7 \times 2^{11} = 2^{3+5+7+11} = 2^{26} = (2^2)^{13} = 4^{13}$ .

- A)  $4^{13}$     B)  $16^{26}$     C)  $2^{1155}$     D)  $16^{1155}$

29.

A

30. The 7 vertical stripes of red, orange, yellow, green, blue, indigo, and violet are repeated 50 times. Since  $100 \div 7 = 14 R2$ , there are 14 full repetitions of this pattern in 100 stripes and then one more red and one more orange.

- A) 7    B) 12    C) 14    D) 15

30.

D

31.  $(4) \times (4) + (6) \times (3) = 16 + 18 = 34$ .

- A) 24    B) 28    C) 34    D) 66

31.

C

32. At 6:15, hr. hand has moved  $(1/4) \times 30^\circ$  from 6, so  $\angle = 90^\circ + 30^\circ/4 = 97.5^\circ$ .

- A)  $82.5^\circ$     B)  $90^\circ$     C)  $97.5^\circ$     D)  $270^\circ$

32.

C

33. Let the herbal teas be A, B, C, D, E, and F. A can be combined with 9 teas, B with 8 besides A, C with 7 besides A and B, . . . , and F with 4 besides A, B, C, D, and E. The total # of blends is  $9 + 8 + \dots + 4 = 39$ .

- A) 24    B) 27    C) 39    D) 54



33.

C

34. It takes 36 workers 48 hours to paint a ship. In all, that is  $36 \times 48 = 1728$  worker-hours. With 24 workers, it would take  $1728 \div 24 = 72$  hours to paint the ship.

- A) 32    B) 56    C) 64    D) 72

34.

D

35. The product of all whole numbers from 1 through 35 includes only 5 factors of 7.

- A)  $2^{18}$     B)  $7^6 \times 3$     C)  $3^{15} \times 5$     D)  $10^8 \times 7$

35.

B

The end of the contest 6

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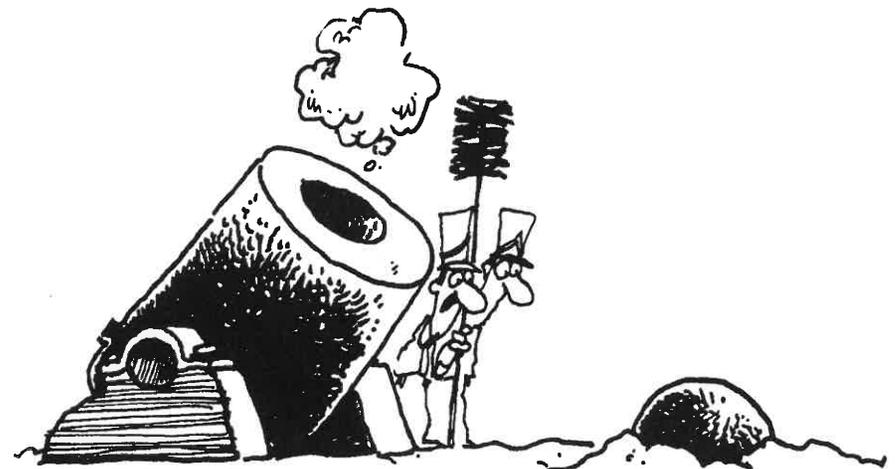
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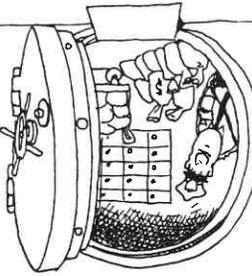
Tuesday, February 18 or 25, 2014

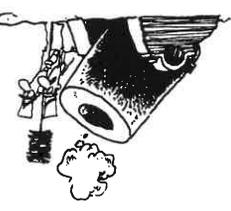
6

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



1.	C		A) 6245 B) 6045 C) 4245 D) 645 and the tuba plays 218 notes. That is a total of $2013 + 2014 + 218 = 4245$ notes.
2.	B		A) 10 B) 30 C) 90 D) 270 $30 + 30 + 30 = 3 \times 30$ .
3.	B		A) 0 B) 1 C) 2 D) 3 3. This has the same remainder as 1 divided by 3. The remainder is 1.
4.	D		A) 140 B) 70 C) 35 D) 28 4. One dollar = 20 nickels, one quarter = 5 nickels, one dime = 2 nickels, and one nickel = 1 nickel. This is the same as 28 nickels.
5.	A		A) 5 B) 15 C) 25 D) 30 $20 - 5 \times 2 = 20 - 10 = 10 = 2 \times 5$ .
6.	C		A) Monday B) Tuesday C) Wednesday D) Thursday 6. Three weeks after yesterday, which was a Monday, is a Monday also. Two days after a Monday is a Wednesday.
7.	D		A) 2 B) 6 C) 8 D) 16 $7. (2 \times 2) \times (2 \times 3) \times (2 \times 4) \times (2 \times 5) = 2 \times 3 \times 4 \times 5 \times (2 \times 2 \times 2 \times 2)$ .
8.	D		A) 18.26 B) 21.42 C) 24.68 D) 25.12 8. The number 25.12 is closer to 30 than it is to 20.
9.	A		A) \$3.00 B) \$4.00 C) \$15.00 D) \$16.00 9. When I split the cost of a video game equally with 4 friends, we each pay \$12. It costs the five of us $5 \times \$12 = \$60$ . If only 4 of us split the cost, we each pay $\$60 \div 4 = \$15$ . We each pay $\$15 - \$12 = \$3$ more.
10.	C		A) 11 B) 13 C) 15 D) 17 10. The number halfway between 4 and 26 is $(4 + 26) \div 2 = 15$ .
11.	C		A) At 5:00 P.M. on Friday, Hal got locked in. Since 5040 mins. is $5040 \div 60 = 84$ hrs., Hal got out in 3 days 12 hrs. That's Tuesday at 5 A.M. C) Tuesday D) Wednesday B) Monday A) Sunday
12.	B		A) $10^5$ B) $10^6$ C) $10^7$ D) $10^8$ 12. $1000000 = 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 = 10^6$ .
13.	A		A) 15 B) 25 C) 30 D) 40 13. $1.5 \times 20 = 30 = 2 \times 15 = 200\%$ of 15.

14.	B		2000 mm. Since 1 cm = 10 mm, 2000 mm is the same as $2000 \div 10 = 200$ cm. A) 20000 B) 200 C) 20 D) 2 15. The area of four $2 \times 8$ rectangles is $4 \times 16 = 64 = \text{area of one } 8 \times 8 \text{ square}$ .
15.	C		A) 8 B) 16 C) 32 D) 64 16. Since $231 = 3 \times 7 \times 11$ , the sum of its prime factors is $3 + 7 + 11 = 21$ . A) 21 B) 22 C) 152 D) 383
17.	B		A) 38 B) 39 C) 40 D) 41 17. The markers numbered 1 through 19 and the markers numbered 81 through 100 are all more than 30 km from the one numbered 50. That is a total of $19 + 20 = 39$ markers.
18.	D		A) 8 B) 10 C) 12 D) 15 18. $5 \times 3 = 15$ .
19.	A		A) 3:2 B) 2:3 C) 11:6 D) 6:11 19. Of 60 people, 24 are men and 36 are women. The ratio of men to women at the meeting is $36:24 = 3:2$ .
20.	D		A) 18 B) 20 C) 38 D) 39 20. The sum of the positive divisors of 18 is $1 + 2 + 3 + 6 + 9 + 18 = 39$ .
21.	A		A) 15 B) 30 C) 60 D) 90 21. I rode my bicycle a total of 450 km in 15 hours. At this rate I would travel 30 km in 1 hour and 15 km in 30 minutes.
22.	A		In 8 years Mac's grandmother will be twice as old as she was 29 years ago. So 29 years ago she was $29 + 8 = 37$ . She is now 66; in 4 years, she'll be 70. A) 62 B) 66 C) 70 D) 74
23.	A		A) 18 B) 24 C) 42 D) 64 23. If the sum of 7 consecutive integers is 63, the middle one is $63 \div 7 = 9$ . The desired sum is $6 + 12 = 18$ .
24.	D		A) $5^2$ B) $3 \times 4$ C) $3 + 4$ D) 5 24. $\sqrt{3^2 + 4^2} = \sqrt{9 + 16} = \sqrt{25} = 5$ .
25.	B		A) 2:1 B) 12:25 C) 13:25 D) 1:2 25. Of the first 100 positive whole numbers, 12 are multiples of 8, and 25 are multiples of 4. The ratio is 12:25.