

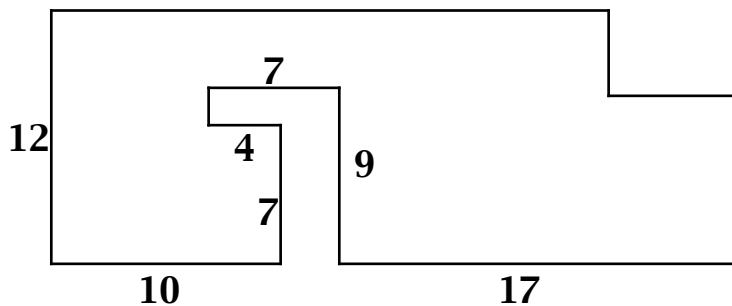
# 2003 Washington State Math Championship

**Unless a particular problem directs otherwise, give an exact answer or one rounded to the nearest thousandth.**

## Individual Test - Grade 6

*The first 10 problems are multiple choice and will count toward your team score. Answer by putting the appropriate letter in the blank on the answer sheet.*

1. In a basketball league with 6 teams, how many games will there be if each team is to play every other team twice?
  - a. 10
  - b. 24
  - c. 30
  - d. 36
  - e. 72
  
2. Which fraction is the median of this set?  $\boxed{\frac{3}{5}, \frac{5}{8}, \frac{7}{10}, \frac{7}{11}, \frac{16}{25}}\boxed{\phantom{00}}$ 
  - a.  $\frac{3}{5}$
  - b.  $\frac{5}{8}$
  - c.  $\frac{7}{10}$
  - d.  $\frac{7}{11}$
  - e.  $\frac{16}{25}$
  
3. Which of these numbers is not divisible by 9?
  - a. 18027
  - b. 16947
  - c. 9594
  - d. 17513
  - e. 15984
  
4. What is the perimeter of this polygon? [Assume all angles are right angles.]



- a. 76
  - b. 110
  - c. 152
  - d. 304
  - e. cannot be determined
- 
5. Which number is the median of this set?  $\boxed{\phantom{00}, \frac{22}{7}, 3.14, \frac{355}{113}, \sqrt{10}}\boxed{\phantom{00}}$ 
    - a. 11
    - b.  $\frac{22}{7}$
    - c. 3.14
    - d.  $\frac{355}{113}$
    - e.  $\sqrt{10}$
  
  6. If today is Saturday, what day of the week is it 2003 days from today?
    - a. Friday
    - b. Sunday
    - c. Monday
    - d. Tuesday
    - e. Thursday

7. On a compact disk each bit of information is  $5 \times 10^7$  meters long. The entire track of all these bits on the CD is 5 kilometers long. The number of bits on the entire track is closest to
- a. 25      b.  $10^4$       c.  $10^{10}$       d.  $10^{21}$       e.  $10^{25}$
8. Congruent copies of which of the following can not cover a flat surface without gaps or overlaps?
- a. rhombus      b. trapezoid      c. convex quadrilateral  
d. non-convex quadrilateral      e. all can cover
9. Two dice are rolled. What is the probability that one die is less than 4 and the other is more than 4?
- a.  $\frac{2}{3}$       b.  $\frac{1}{2}$       c.  $\frac{1}{3}$       d.  $\frac{1}{4}$       e.  $\frac{1}{6}$
10. What is the smallest number boards 2 units || 3 units || 8 units that can be stacked into the shape of a cube?
- a. 576      b. 288      c. 48      d. 24      e. 12

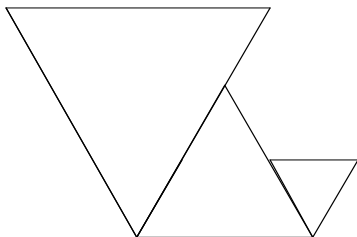
*Problems 11-30 will count toward your individual score but not your team score.*

11. If one card is drawn from a standard 52 card deck, what is the probability of *not* drawing a 7? [Answer as a reduced fraction.]
12. The fraction  $\frac{13}{5}$  is equivalent to what percent?
13. The sum of 3 consecutive numbers is 1293. What is the smallest of the three numbers?
14. Bonnie bought 3 pounds of grapes at \$0.89 per pound. How much change did she receive from a five-dollar bill?
15. What is the sum of the reciprocals of 0.6 and  $3\frac{1}{5}$ ? Express your answer as a mixed number.
16. Seventy percent of the salmon eggs were fertilized. Sixty percent of the fertilized eggs hatched. Ninety percent of the hatched were eaten before they reach the ocean. If 2100 salmon reached the ocean, how many eggs were there to start with?
17. A 72-inch rope is cut into 5 pieces but one piece is  $\frac{4}{5}$  of the others. How many inches long are the longer pieces?
18. What is  $0.\overline{24}$  as a reduced common fraction?

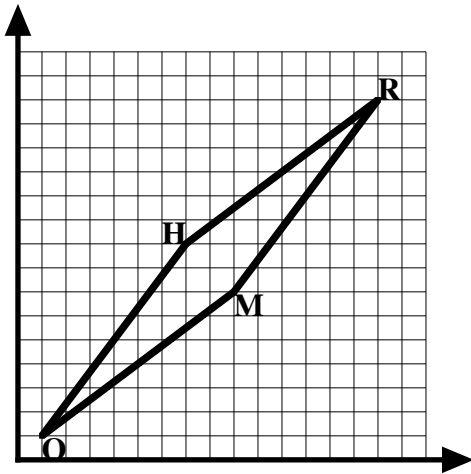
19. In 12 minutes of swimming 80 calories are burned. At this rate how many calories are burned on a half-hour swim?
20. How many differently shaped rectangles with whole number sides could have an area of 360?
21. Coyote Car Rental charges \$24 for a single day rental and \$12 per day for additional days. If someone rents a car for a week, s/he gets one of the additional days free. Coyote also charges \$0.05 per mile if the car is not returned in the city where it was originally rented. It is 1300 miles from Seattle to Denver. What does it cost to take one of Coyote's cars from Seattle to Denver and leave it there if the trip lasts 7 days?
22. The area of one small square is 1, and the area of the largest square is 100. What is the area of the quadrilateral region enclosed by heavier lines?



23. The approximate radius of the meteorite that caused the extinction of the dinosaurs 65 million years ago was 3.1 miles. Assuming the meteorite was spherical, to the nearest cubic mile what was its volume?
24. A speed of 60 miles per hour is equivalent to 88 feet per second. If Boris traveled 75 miles in 3 hours and 45 minutes, to the nearest tenth what was his average speed in feet per second?
25. Evaluate:  $\frac{1}{3 \cdot \frac{8}{4+2}} \square \frac{5 \square 6}{9 \square 7}$
26. Three equilateral triangles are pictured. The smallest has side lengths that are  $\frac{1}{3}$  of the largest, and the other triangle has side lengths that are  $\frac{2}{3}$  of the largest. If the largest triangle has side lengths of 12, what is the perimeter of the entire figure?



27. In the previous problem the area of the smallest triangle is  $4\sqrt{3}$ . What is the area of the entire figure?
28. A badger weighs the same as 4 marmots, and 3 marmots weigh the same as 5 weasels. So that we can replace all six of the stinking badgers, how many weasels weigh the same as 6 badgers?
29. What is the area of rhombus  $RHOM$ ? [Assume that each small square is one unit on a side.]



30. If  $RHOM$  is rotated  $90^\circ$  clockwise around point R, what will be the new coordinates of point O?