

**Grade 7 CHAMP Math Contest 2007**

17. A, B, C, D, and E represent 0, 1, 2, 4, or 8 (not necessarily in that order). Each letter represents exactly one of the numbers. The following equations are true.

$$\begin{aligned} C \cdot A &= C \\ E + E &= A \\ D \div E &= A \\ B \cdot B &= B \end{aligned}$$

Which letter represents 4?

- a) A      b) B      c) C      d) D      e) E

18. Which statement about parallelograms is false?

- a) The diagonals of any parallelogram bisect each other.
- b) Some parallelograms have four right angles.
- c) Some parallelograms are equilateral.
- d) Opposite angles of any parallelogram are supplementary.
- e) Opposite angles of any parallelogram are congruent.

19. Six cups numbered 1 through 6 must be placed on the six squares labelled 1 through 6, one per square, according to these rules:

- The number on a cup never matches the number in the square
- Cup # 3 is on a square adjacent to and right of Cup # 1
- Cup # 6 is on a square adjacent to and below Cup # 4

1	2	3
4	5	6

According to these rules, Cup #2 must be placed in which square

- a) 1      b) 3      c) 4      d) 5      e) 6

20. Eight grade 7's set up their own telephone system. How many telephone calls are required if each pair of friends speak together once?

- a) 28      b) 64      c) 49      d) 16      e) 56

**Part A: (5 credits each)**

1. When you toss a pair of dice, each containing the digits 1 through 6, what is the probability that the sum of the values face-up on the cubes will not be 3?

- a) 17/18      b) 1/6      c) 5/6      d) 18/36      e) 3/36

2. What are the next two terms in this sequence?

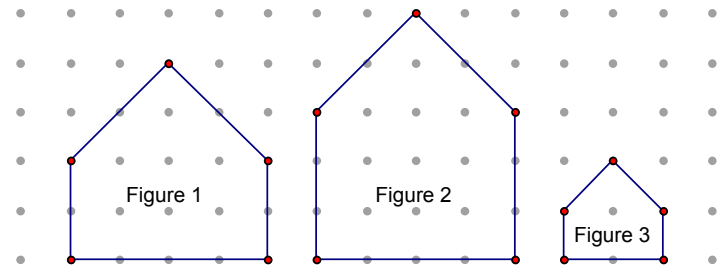
15, 30, 20, 27, 25, 24, 30, 21, 35, 18, \_\_\_\_, \_\_\_\_

- a) 15, 30      b) 1, 0      c) 36, 20      d) 14, 40      e) 40, 15

3. A palindrome is a number that reads the same both forward and backward, such as 22, 343, and 1441. How many whole number palindromes exist between 100 and 200?

- a) 6      b) 8      c) 10      d) 12      e) 14

4. Which statement is true about the figures shown below?



- a) Figure 1 is similar to Figure 2, but Figure 1 is not similar to Figure 3
- b) Figure 1 is not similar to Figure 2, but Figure 1 is similar to Figure 3
- c) Figure 1 is similar to both Figure 2 and to Figure 3.
- d) Figure 1 is not similar to Figure 2, but Figure 2 is similar to Figure 3
- e) No two of the figures are similar to each other

CHAMP 2007

Grade 7  
Contest



**Credit  
Humber  
Association for  
Mathematics  
Promotion**

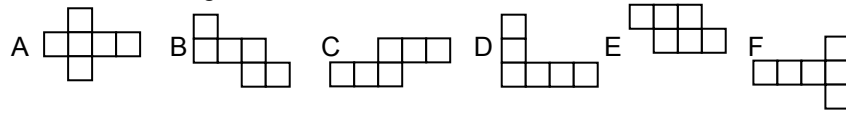
**INSTRUCTIONS TO THE STUDENT**

1. Open your booklet when your supervisor gives you the signal to begin working.
2. Use of scratch paper, graph paper, ruler, compasses and non-programmable/ non-graphic calculators is permitted.
3. In this multiple choice test each question is followed by five answers marked (a), (b), (c), (d) and (e). Only one of these answers is correct. Mark the answer you have chosen on the answer sheet. Fill in the centre of the box and stay within the lines.
4. Please note the scoring system used:  
For PART A answers, 5 credits each  
For PART B answers, 6 credits each  
For PART C answers, 8 credits each  
Unanswered questions **are worth 2 credits each**, to a maximum of 20 credits.
5. **AVOID GUESSING.** If you are unable to solve a problem it is better not to answer the question.
6. Diagrams may not be drawn to scale.
7. You have exactly 60 minutes to complete the contest.

*GOOD LUCK!*

**Grade 7 CHAMP Math Contest 2007**

5. Which of the figures can be folded to form cubes?



- a) A only    b) A, B, C, D & F    c) A, B, C & F    d) A, C, E, & F    e) A, B & F

6. On five tests, on which scores could range anywhere from 0 to 100, Juan had an average of exactly 88. What is the lowest score Juan could have received on one test?

- a) 0    b) 20    c) 22    d) 40    e) 44

7. A dollar was changed into 16 coins consisting of just nickels and dimes. Which algebraic expression depicts this if  $n$  represents nickels and  $d$  represents dimes?

- a)  $5n + 10d = 1$     b)  $5n + 10d = 100$     c)  $10n + 5d = 1$     d)  $n + d = 100$     e)  $10n + 5d = 100$

8.  $\frac{7}{0.7} - 7$  is equal to :

- a) - 6    b) 0    c) 0.142857    d) 3    e) 10

9. Two hundred trolls divided a block of gold evenly. What percent of the block of gold did each troll receive?

- a) 200%    b)  $\frac{1}{200}\%$     c) 2%    d) 0.5%    e) 0.2%

10. The greatest common factor of 72 and X is 3. The least common multiple of 72 and X is 1800. What must be true?

- a) X is less than 72  
b) X is multiple of 5.  
c) X is a multiple of 72.  
d) X is a factor of 3.  
e) X is even

**Part B: (6 credits each)**

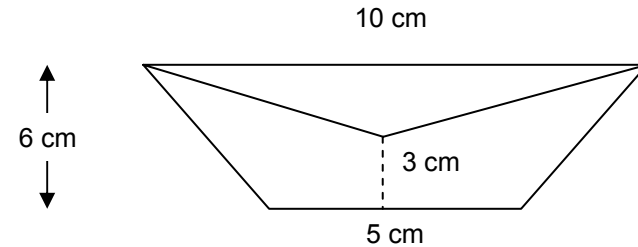
11. Don, Marco and Nat ate a 12-slice pizza. Don ate 5 slices, Marco ate 4 slices and Nat ate 3 slices. If the cost of Marco's share of the pizza was \$3.40, then the cost of Don's share, in dollars, was

- a) 2.72    b) 3.70    c) 4.08    d) 4.25    e) 10.20

12. What is the sum of the whole numbers of 1 through 80?

- a) 3 280    b) 6 480    c) 3 075    d) 6 400    e) 3 240

13. What percentage of the area of the trapezoid is the area of the triangle?



- a) 20%    b)  $33\frac{1}{3}\%$     c) 28%    d) 18%    e) 25%

14. If  $A \div B$  means  $(A + B)/2$ , then what is the value of  $(3 \div 5) \div 8$ ?

- a) 1    b) 6    c) 8    d) 16    e) 60

15. The length of each side of triangle ABC is a prime number. Its perimeter is also a prime number. Find the smallest possible perimeter.

- a) 3    b) 7    c) 11    d) 13    e) none of these

16. A rectangular box has a volume of 750,000 cubic centimetres. It is 1 meter wide and 1.5 meters long. How tall is the box?

- a) 0.5 m    b) 5 m    c) 50 m    d) 500 m    e) 5000 m

**Grade 7 CHAMP Math Contest 2007**

**Part C: (8 credits each)**

21. Allie wrote a list consecutive whole numbers starting with the number 1. She used 261 digits. What was the last number she wrote?

- a) 123      b) 118      c) 272      d) 117      e) 87

22. At 12:22 a clock's hour hand is how many degrees away from a vertical position?

- a)  $10^\circ$       b)  $11^\circ$       c)  $12^\circ$       d)  $21^\circ$       e)  $22^\circ$

23. Three fifths of the eighth-grade students are girls. Half the eighth-grade boys get to school by bus. One sixth of the eighth-grade girls get to school by bus. There are 147 eighth-grade students who do not ride the bus. How many students are in the eighth grade?

- a) 441      b) 882      c) 210      d) 192      e) 368

24. Janu wishes to share five identical strands of liquorice equally among eight people. What is the minimum number of cuts that must be made? Assume that each cut cuts only one piece of liquorice and that she may use a ruler.

- a) 5      b) 6      c) 7      d) 8      e) 11

25. Two sets of twins, sitting together on a park bench, pose for a photograph. If no one wishes to be separated from their biological twin, then the number of different possible seating arrangements is:

- a) 2      b) 3      c) 4      d) 5      e) 8