

Name _____

Room _____

MATHCOMP 2007
Grade 6 - 75 minutes

1. If $\frac{3}{5} = \frac{A}{45} = \frac{60}{B}$, then $A + B =$

- A) 27 B) 29 C) 45 D) 109 E) 127

2. The sum of three different prime numbers is 40. The difference between the two larger primes is

- A) 8 B) 12 C) 16 D) 20 E) 24

3. The sum of two positive integers is 11. The smallest possible value for the sum of their reciprocals is

- A) $\frac{11}{30}$ B) $\frac{11}{28}$ C) $\frac{11}{24}$ D) $\frac{11}{20}$ E) $\frac{11}{18}$

4. What is 50% of 2006 plus 2006% of 50?

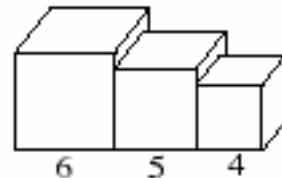
- A) 1013.5 B) 1053 C) 1103.3 D) 1504.5 E) 2006

5. A package of 20 plastic forks costs 39¢ and a package of 24 plastic knives costs 45¢. If you wish to purchase the same number of forks as knives, the least amount you will need to spend is

- A) \$3.36 B) \$4.20 C) \$4.59 D) \$5.34 E) \$9.18

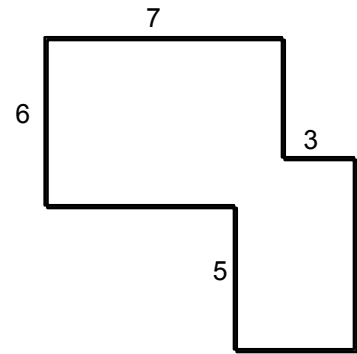
6. Three cubes have edges of lengths 4, 5 and 6. The average (mean) of their volumes is

- A) 120 B) 125 C) 135 D) 270 E) 405



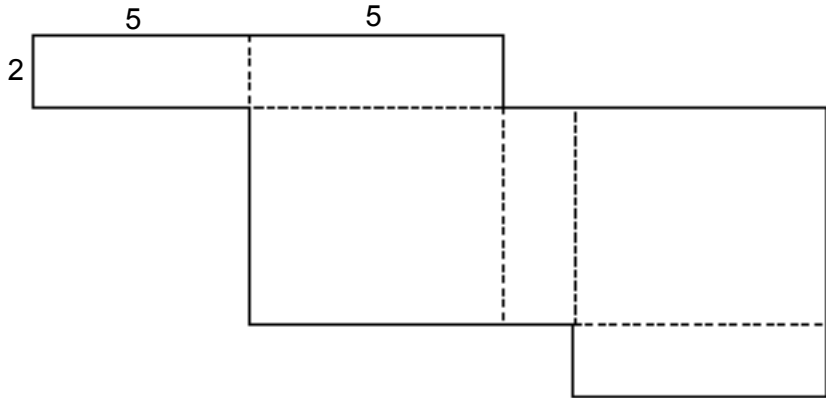
7. What is the perimeter of the figure shown? All angles are right angles.

- A) 21 B) 28 C) 37 D) 39 E) 42



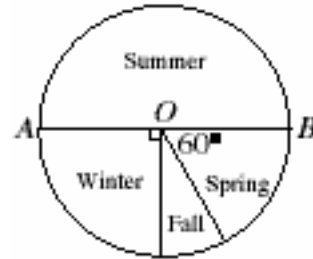
8. The figure is a net for a rectangular prism with a square base. The volume of the prism [in cubic units] is

- A) 20 B) 24 C) 25
D) 40 E) 50



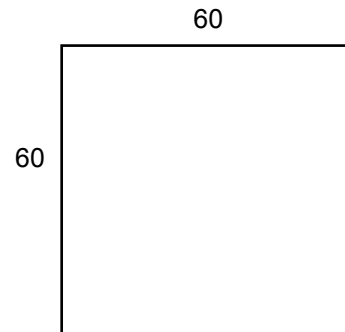
9. In the diagram, O is the center of the circle, AOB is a diameter, and the circle graph illustrates the favorite season of 600 students. How many of the students surveyed chose Fall as their favorite season?

- A) 50 B) 75 C) 100 D) 150 E) 360



10. What is the maximum number of 4 cm by 10 cm rectangles that can be cut from this 60 cm by 60 cm square?

- A) 21 B) 36 C) 45 D) 60 E) 90



11. Randy and his 5 friends played a card game in which the person with the lowest final score wins. The table below shows the final scores for all the players except Erica. If Erica's score was the mean of the six scores, what was Erica's score?

Card Game

Player	Score
Randy	121
Erica	
John	119
Sam	110
Dawn	123
Maya	112

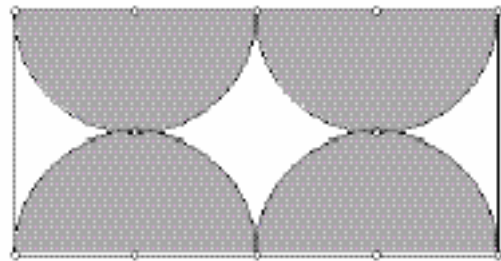
- A) 116 B) 117 C) 118 D) 119 E) 120

12. In basketball, a player can score via 3-point shots, 2-point shots, and 1-point free throws. If Tara made seven 2-point shots while scoring 34 points, what is the minimum number of free throws she could have made?

- A) 0 B) 1 C) 2 D) 3 E) 4

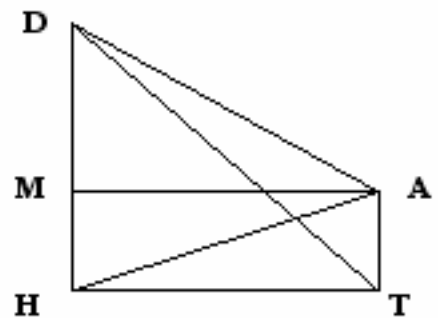
13. Four half circles of radius r are traced inside a rectangle. What is the area of the white region?

- A) $(8 - 2\pi)r^2$ B) πr^2 C) $4r^2$ D) $2\pi r^2$ E) $8r^2$



14. MATH is a rectangle. $DH = HT$. The area of $\triangle DHT$ is 8 and the area of $\triangle AHT$ is 3. The area of $\triangle MAD$ is

- A) 4.5 B) 5 C) 5.5 D) 6.5 E) 11



15. There are four pairs of white socks, five pairs of brown socks, and six pairs of black socks in a drawer. How many socks, without looking, must you pull from the drawer to be certain that you have a pair of white socks?

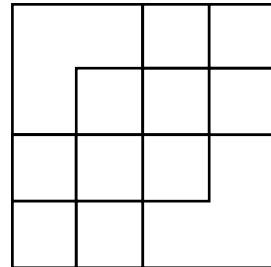
- A) 2 B) 13 C) 17 D) 22 E) 24

16. Jackie and Laura went to the restaurant for lunch. The bill for the two of them was \$25.50. Jackie paid the bill with her credit card and Laura left a \$2.50 tip in cash. If they agreed to split the total bill equally, then how much did Laura owe Jackie?

- A) \$11 B) \$11.50 C) \$12 D) \$12.50 E) \$13

17. How many squares of all sizes are in the figure?

- A) 13 B) 14 C) 15 D) 16 E) 18

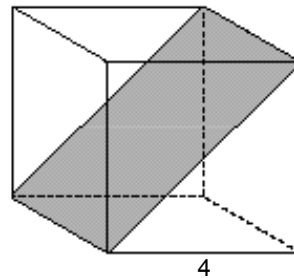


18. The number of 4-digit numbers for which the sum of its digits is greater than 33 is

- A) 9 B) 11 C) 14 D) 15 E) 16

19. If the edge of this cube is 4, then the area of the shaded rectangle [in square units] is closest to

- A) 16 B) 20 C) 24 D) 28 E) 32

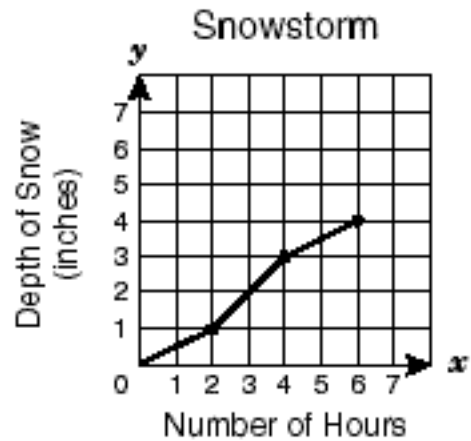


20. Harry charges \$4 to babysit for the first hour. For each additional hour, he charges 50% more than he did for the previous hour. How much money in total would Harry earn for 4 hours of babysitting?

- A) \$13.50 B) \$16.00 C) \$19.00 D) \$28.00 E) \$32.50

21. The graph shows the depth of snow over a 6-hour period during a snowstorm. The average number of inches of snow that fell per hour is

- A) $\frac{2}{3}$ B) $\frac{3}{4}$ C) 1 D) $\frac{3}{2}$ E) 2



22. What is the maximum number of months in a year that can have 5 Fridays?

- A) 1 B) 2 C) 3 D) 4 E) 5

23. There are 26 students in a class including exactly 12 girls and 20 sixth graders. What is minimum possible number of sixth-grader girls in the class?

- A) 4 B) 6 C) 8 D) 10 E) 12

24. In a magic square, the sum of the three entries in each row, column, or diagonal has the same value. The figure shows four of the entries of a magic square. What is x?

		3
X	4	5

- A) 6 B) 7 C) 8 D) 9 E) 10

25. Half of the students in a class are girls. If the number of boys were three times as large and the number of girls twice as large, what would the percent of boys in the class become?

- A) 50% B) 60% C) 75% D) 80% E) Not enough information

26. A jar contains 6 red marbles and 10 blue marbles, all of equal size. If Dominic were to randomly select one marble without replacement and then select another marble from the jar, what would be the probability of selecting 2 marbles of the same color from the jar?

- A) $\frac{1}{8}$ B) $\frac{1}{4}$ C) $\frac{3}{8}$ D) $\frac{1}{2}$ E) $\frac{3}{5}$

27. For how many positive values of n are both $\frac{1}{2}n$ and $2n$ 3-digit whole numbers?

- A) 0 B) 150 C) 200 D) 300 E) 500

28. At noon, a car travels from A to B at a constant speed of 60 mph. At the same time, a van travels at a constant speed from B to A. At 3:30 pm, the car and the van are 85 miles apart after having passed each other. If the car arrives at B at 5:00 pm, at what time does the van arrive at A?

- A) 5:30 pm B) 5:45 pm C) 6:00 pm D) 6:15 pm E) 6:30 pm

29. A class containing boys and girls took a test. If exactly $\frac{2}{3}$ of the boys and exactly $\frac{3}{4}$ of the girls passed the test and if an equal number of boys and girls passed the test, then what is the minimum possible number of students in the class?

- A) 12 B) 16 C) 17 D) 24 E) 36

30. The figure shows a 4 by 4 square inside a 5 by 10 rectangle. The area of the shaded region, in square units, is

- A) 10 B) 12 C) 14 D) 15 E) 16

