

CIE-USA/DFW

MathComp 2010

Grade 6

30 questions

Time: One Hour

Note:

- Make sure to write all your answers on the answer sheet. Only the answer sheet will be graded.
- Each question only has one correct answer.
- Print your name clearly and legibly below.

Name _____

Room _____

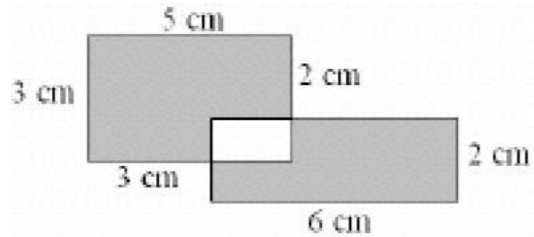
1. The sum of the numbers $a, b,$ and c is 54. In addition, a is twice as large as b ; and b is 6 less than c . What is b ?

- A. 11 B. 12 C. 13 D. 14 E. 10

2. How many letters of the word **PROJECTIVE** do not have any lines of symmetry?

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

3. The figure is a combination of two overlapping rectangles as shown. The shaded area, in square cm, is



- A. 19 B. 23 C. 24 D. 25 E. 26

4. Gage skated 1 hr 15 min each day for 5 days and 1 hr 30 min each day for 3 days. How long would he have to skate the ninth day in order to average 85 minutes of skating each day for the entire time?

- A. 1 hr B. 1 hr 10 min C. 1 hr 20 min D. 1 hr 40 min E. 2 hr

5. If x is a positive integer, then $x + \sqrt{x}$ can be equal

- A. 21 B. 32 C. 60 D. 90 E. 45

6. The odd integers between 6 and 2010 are multiplied together. The last digit [units digit] of the product is

- A. 1 B. 3 C. 5 D. 7 E. 9

7. How many total numbers between 99 and 2010 are divisible by 5, 6, and 8?

- A. 13 B. 16 C. 15 D. 14 E. 17

8. If p is a positive integer and q is a negative integer, which of the following is the largest?

- A. $p-q$ B. $q-p$ C. $p+q$ D. $-p-q$ E. pq

9. If 70% of Texans have seen mountain A and 80% of them have seen mountain B, what is the smallest possible value for the percent of Texans who have seen both mountains?

- A. 30 B. 42 C. 50 D. 60 E. 55

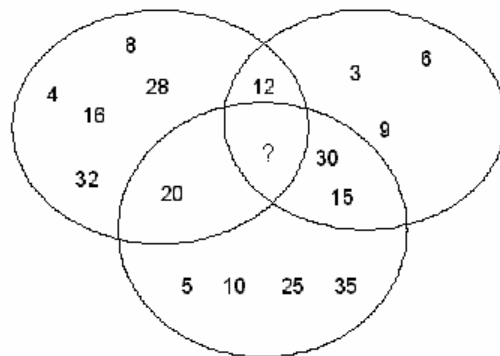
10. Which one of these five numbers is the smallest?

- A. $\frac{1}{12} \div \frac{1}{18}$ B. $\frac{1}{18} \div \frac{1}{12}$ C. $\frac{1}{18} \times \frac{1}{12}$ D. $\frac{1}{18} - \frac{1}{12}$ E. $\frac{1}{12} - \frac{1}{18}$

11. The sum of $k > 1$ consecutive positive integer numbers is 14. What is k ?

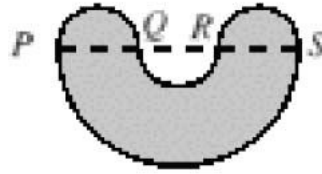
- A. 3 B. 4 C. 5 D. 2 E. 6

12. This Venn diagram is used to classify counting numbers according to a set of rules. Which one of the following numbers belongs in the region of the diagram made by the question mark?



- A. 45 B. 70 C. 50 D. 65 E. 60

13. The points P, Q, R, and S are collinear with $PQ = QR = RS = 2$. The shape is made up of semi-circles with diameters PQ, QR, RS, and PS. The area of the [shaded] shape



- A. 3π B. $\frac{7}{2}\pi$ C. 4π D. $\frac{9}{2}\pi$ E. 5π

14. One year a monthly calendar looked like the diagram below. The sum of the numbers in one of the 3×3 arrays of this calendar is 162. What is the smallest number in that 3×3 array?

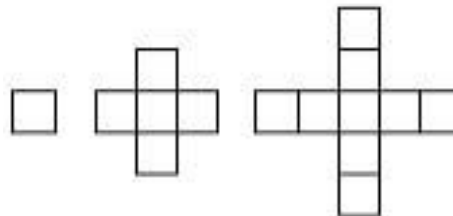
M	Tu	W	Th	F	Sa	Su
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

- A. 8 B. 9 C. 10 D. 16 E. 17

15. A lily pad doubles in size each day. If it takes 30 days for the lily pad to cover the entire pond, how many days will it take to cover one-sixteenth of the pond?

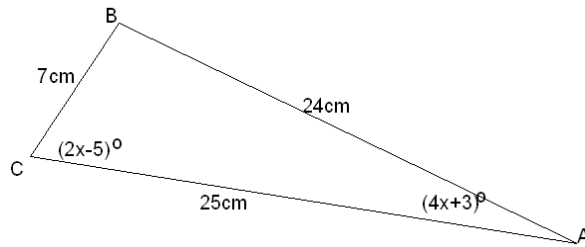
- A. 28 B. 24 C. 27 D. 26 E. 25

16. It takes four toothpicks to build the first figure in this set. How many toothpicks are needed to build the thirteenth figure?



- A. 148 B. 145 C. 144 D. 151 E. 152

17.



$\angle BAC = ?$ (choose one of the following closest to $\angle BAC$)

- A. 15.5° B. 31° C. 46.5° D. 60° E. 64°

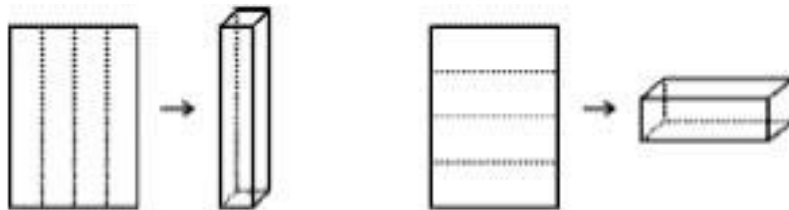
18. Three wolves eat two lambs for one hour and a half. For how many hours will one wolf eat one lamb?

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

19. A set of five different positive integers has its mean and its median both equal to 25. What is the largest possible integer that this set can contain?

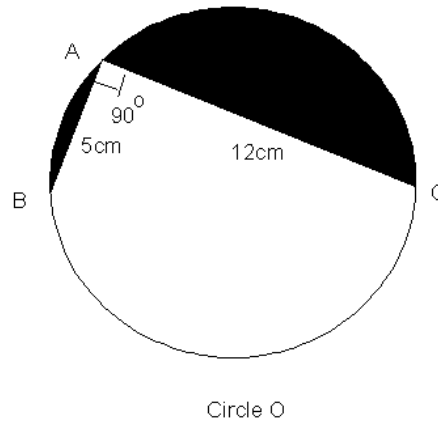
- A. 65 B. 67 C. 71 D. 73 E. 77

20. Take two sheets of 12 inch by 20 inch paper. Fold one sheet vertically into fourths to form the sides of a rectangular prism. Fold the other sheet horizontally into fourths to form the sides of a different rectangular prism. What is the difference in volume, in cubic inches, between the larger prism and the smaller prism?



- A. 110 B. 115 C. 120 D. 130 E. 125

21. What's the shaded area?



- A. 36.33 B. 40.44 C. 45.33 D. 30.44 E. 60.33

22. The last digit [units digit] of $7^{2010} + 2009^7$ is

- A. 6 B. 7 C. 8 D. 5 E. 4

23. One tomato plus one walnut cost as much as one apple plus one pear. A pear costs as much as an apple plus a walnut. A tomato costs as much as a pear plus four walnuts. How many walnuts does a tomato cost?

- A. 8 B. 12 C. 9 D. 10 E. 11

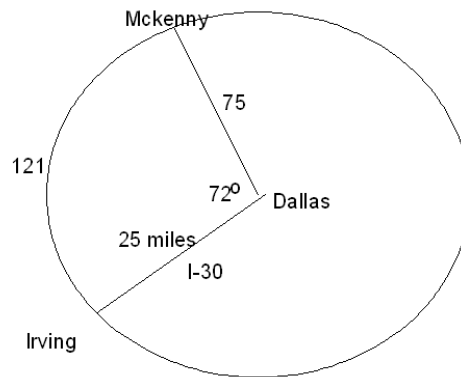
24. Adolph Monk had a difficult year in 2009. A crime wave in London meant he had 30% more cases to solve in 2009 than in 2008, but his success rate dropped. In 2008, he solved 90% of his cases, but in 2009, he solved only 70% of them. The percent change in the number of cases he solved in 2009 compared to 2008 is closest to?

- A. down 1.0% B. down 1.1% C. no change D. up 1.1% E. up 1.0%

25. Minerva wants to use the map shown below to determine the driving distance from her home in Irving to her work place in McKenny using highway 121. She has the following information to make her calculations highway 121 is circular with a

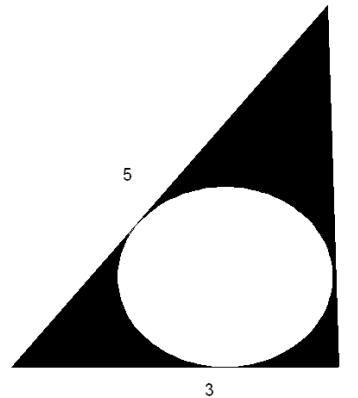
- radius of 25 miles and the center at Dallas
- I30 and 75 intersect at Dallas

According to the map, how many miles must Minerva drive going clockwise from Irving to McKenny on highway 121?



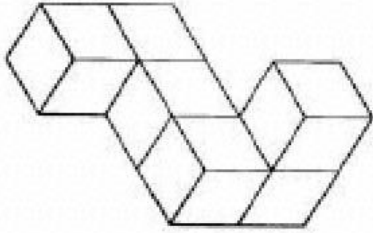
- A. 5π B. 10π C. 15π D. 20π E. 25π

26. What is the area of the shaded part of the triangle? (unit is cm)



- A. 2.66 cm^2 B. 2.76 cm^2 C. 2.86 cm^2 D. 2.96 cm^2 E. 3.06 cm^2

27. What is the surface area of this solid figure in square inches if the edge of each cube measures 1 inch?



- A. 25 B. 26 C. 27 D. 28 E. 29

28. Two six-sided dice each have two red, two yellow, and two blue faces. If we roll the dice, what is the probability that both dice show matching colors?

- A. $\frac{1}{36}$ B. $\frac{1}{9}$ C. $\frac{1}{27}$ D. $\frac{1}{3}$ E. $\frac{1}{6}$

29. A fair coin is tossed 3 times. Find the probability that at least one head is obtained

- A. 0 B. $\frac{3}{8}$ C. $\frac{1}{4}$ D. $\frac{7}{8}$ E. $\frac{1}{2}$

30. In the diagram on the right, how many squares, of any size, are there whose entries have an odd sum?

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

- A. 19 B. 15 C. 32 D. 36 E. 45