





Math Kangaroo 1998 Level 5 – 6

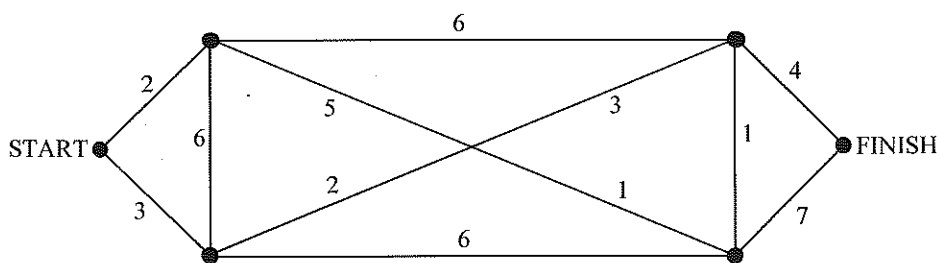
Problems 3 points each:

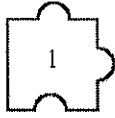


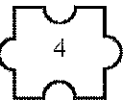
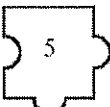

1. Give the coordinates of the kangaroo.

A) 2X B) 3Y C) 1Y
D) 4Z E) 3T

	X	Y	Z	T
1				
2				
3				
4				

2. A kangaroo is traveling from START to FINISH using the paths shown in the picture. Each segment is marked with the time (in minutes) which the kangaroo needs to travel that segment. What is the shortest time needed for the kangaroo to reach FINISH?

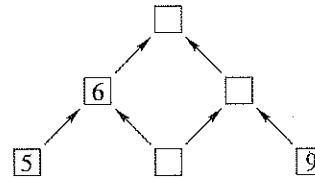
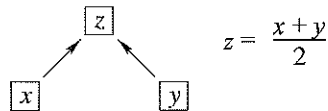


- A) 11 minutes B) 13 minutes C) 16 minutes D) 19 minutes E) 12 minutes
3. Among the puzzle pieces below, two have the same area. Which two?
- 




- A) 4 and 2 B) 1 and 5 C) 1 and 3 D) 4 and 5 E) 3 and 5
4. Which of the numbers below is the smallest natural number greater than 360 and at the same time a square of a natural number?
- A) 400 B) 362 C) 361 D) 900 E) other number
5. One night and day period on Mars is 40 minutes longer than on Earth. How much longer is a week on Mars than on Earth?
- A) 4 hr 40 min B) 2 hr 80 min C) 7 hr 20 min D) 40 min E) 0 min
6. How many rectangles are there in the picture?
- 
- A) 1 B) 3 C) 4 D) 5 E) 6
7. A wall clock strikes at every hour (the number of strikes corresponds to the time, so, for example, at 10 AM and at 10 PM you will hear 10 strikes). The clock also strikes once at the half-hour mark. How many strikes can be heard in one 24-hour period?
- A) 24 B) 136 C) 180 D) 196 E) 240

8. It is now the spring of 1998. The last Summer Olympics took place in 1996, and the last Winter Olympics finished just a few weeks ago. Both the Summer and Winter Olympics take place every 4 years. Counting both the summer and winter competitions, how many more times will the Olympics take place before March 20, 2051?
- A) 13 B) 16 C) 25 D) 26 E) other answer
9. In how many ways can you place two identical 1 dollar coins in three pockets?
- A) 2 B) 3 C) 4 D) 6 E) 8
10. Andy is wearing a t-shirt with the word KANGOUROU on it. He is standing in front of a mirror. What word does he see when he looks at his t-shirt in the mirror?
- A) KVIQNB B) RUGNAK C) RYUQIAJ D) KAIQUR E) RQDNVY

Problems 4 points each:

11. What number is at the top of the pyramid if it is formed according to the pattern shown below?

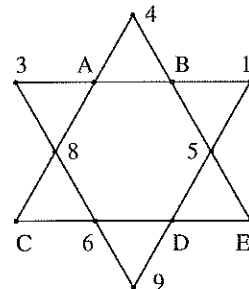


- A) 5 B) 7 C) 8 D) 9 E) 12
12. A watermelon weighs $\frac{4}{5}$ kg more than $\frac{4}{5}$ of the same watermelon. How much does the watermelon weigh?
- A) $\frac{8}{5}$ kg B) 4 kg C) 3 kg D) 4.5 kg E) 5 kg
13. There are stools and chairs in the room. Each stool has 3 legs, and each chair has 4 legs. Altogether there are 17 legs. How many chairs are there in the room?
- A) 5 B) 4 C) 3 D) 2 E) 1
14. If $\square + \circ = 30$, $\square + \Delta + \Delta = 160$, and $\Delta + \circ = 80$, then $\square + \Delta + \circ + \circ = ?$
- A) 80 B) 100 C) 110 D) 210 E) 90
15. When from any three-digit number we subtract that number written backwards, the difference will always be a number that is divisible by:
- A) 7 B) 2 C) 5 D) 9 E) 13
16. When Mr. Kowalski was asked how old he was, he said, "I have lived 44 years, 44 months, 44 weeks, 44 days and 44 hours." How many years old is Mr. Kowalski?
- A) 44 B) 47 C) 48 D) 49 E) 50
17. There are 3 married couples. In how many ways can we form a three-person group in which there will not be a married couple?
- A) 1 B) 2 C) 6 D) 8 E) 20

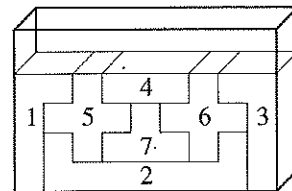
18. On Monday morning, a snail fell down a well which is 10 meters deep. During the day, it climbs up 2 meters, and during the night it slides down 1 meter. On what day of the week will the snail get out of the well?
- A) Tuesday B) Thursday C) Saturday D) Sunday E) Monday
19. John and Stan each have three cards marked with digits. John's cards are marked with the digits 2, 4, and 6, and Stan's cards are marked with the digits 1, 3, and 5. They are taking turns placing their cards in this diagram: $\square\square\square\square\square\square$. John will fill in the first spot on the left, Stan the second spot, etc. John is trying to make the final number as small as possible, and Stan is trying to make it as large as possible. What number will they form?
- A) 123456 B) 654321 C) 254361 D) 253146 E) 253416
20. At a fair, the tickets for four various types of rides cost respectively 2 dollars, 3 dollars, 4 dollars and 5 dollars. A class took a field trip to the fair. They bought enough tickets for each student to go on each of the four rides once. The tickets cost 280 dollars altogether. How many tickets did they buy?
- A) 14 B) 20 C) 40 D) 80 E) 140

Problems 5 points each:

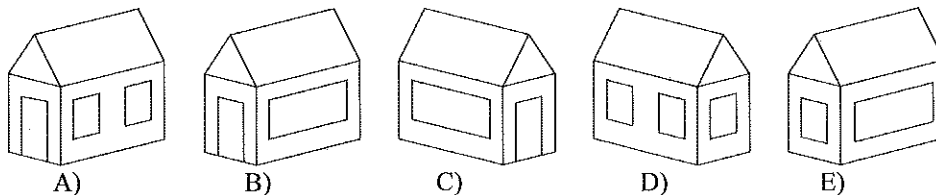
21. A juice carton which is $\frac{3}{4}$ full contains enough juice to fill $1\frac{1}{2}$ glasses. How many glasses will juice from 5 full cartons fill?
- A) $7\frac{1}{2}$ B) $3\frac{3}{4}$ C) 8 D) 10 E) $8\frac{1}{4}$
22. Whole numbers from 1 to 12 are placed in the figure in such a way that the sum of the four numbers found along each segment is the same (see the picture). Under which letter is the number 7 hidden?
- A) A B) B C) C D) D E) E
23. What is the ones digit in the number $1^2 + 2^2 + 3^2 + 4^2 + 5^2 + 6^2 + 7^2 + 8^2 + 9^2 + 10^2$?
- A) 1 B) 3 C) 5 D) 7 E) 9



24. Choose the order in which it would be impossible to place the blocks in the box.
- A) 2, 7, 5, 6, 4, 1, 3 B) 2, 7, 5, 1, 6, 4, 3 C) 2, 7, 6, 3, 4, 5, 1
 D) 2, 7, 6, 5, 3, 1, 4 E) 2, 7, 5, 1, 6, 3, 4



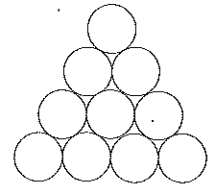
25. In the diagrams below, house X is shown 4 times (from different sides), and house Y is shown just once. Which picture shows house Y?



26. Four teams took part in a soccer tournament. The rules were:
 a) each team plays against each of the other teams exactly once, and
 b) a team gets 3 points for winning, 0 points for losing, and 1 point if there is a tie.
 At the end of the tournament, the teams had respectively 5 points, 3 points, 3 points and 2 points. How many of the games ended in a tie?

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

27. Ten coins were placed as shown in the picture. What is the smallest number of coins that needs to be removed so that an equilateral triangle cannot be formed by the centers of any three of the remaining coins?



A) 3 B) 4 C) 5 D) 6 E) 7

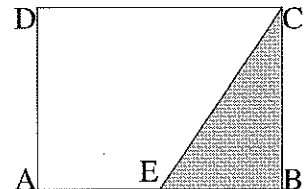
28. Snow White lined up the Seven Dwarfs from shortest to tallest. She divided between them 77 berries which they had picked in the forest. The shortest dwarf got a certain number of berries, the next one got one berry more, and so on. How many berries did the tallest dwarf get?

A) 17 B) 8 C) 14 D) 10 E) 15

29. In basketball semi-finals, team A plays against team B and team C plays against team D. The winners of these two games will play against each other for first and second place, and the losers will play for third and fourth place. How many possible outcomes are there?

A) 4 B) 8 C) 12 D) 16 E) 24

30. The area of the shaded triangle is one-fourth of the area of the rectangle (see the picture). What part of the length of the base of the rectangle is the base of the triangle?



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