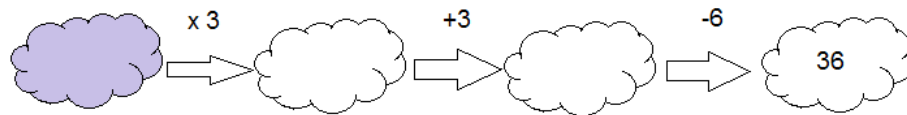


# Math Kangaroo Practice

November 14, 2010

All of these problems are taken from previous Math Kangaroo tests.

1. The little kangaroo's jump is 3 times shorter than his mother's jump. How many jumps does the little kangaroo need to make to travel the distance equal to seven of his mother's jumps?
2. A log that is 15 meters long needs to be cut into pieces that are three meters long. How many cuts need to be made?
3. What number do we need to write in the shaded cloud so that after performing the operations indicated in the picture, we get the number 36?



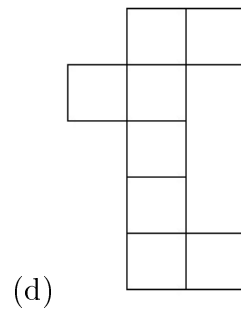
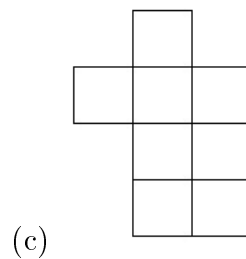
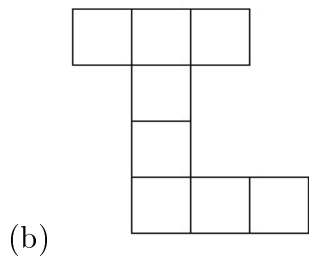
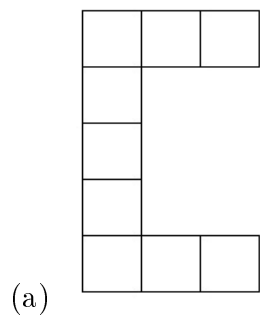
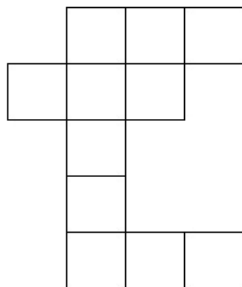
4. Adam wrote out all the numbers from 1 to 60 inclusive. How many times did he use the digit 5?
5. Tom wrote various words in code in such a way that different digits represent different letters and the same digit represents the same letter. For example, the word BALL was coded as 3488. One of the words below was coded as 6155491. Which one?
- (a) SURGEON
  - (b) HARBOUR
  - (c) SWEATER
  - (d) MESSAGE
6. There are equal numbers of cats, dogs and chickens in the yard. Together, they have 50 legs. How many cats are there in the yard?

7. In two days, a tourist walked 33 kilometers. During the second day, he walked three times as far as he did the first day, and then 5 kilometers more. How many more kilometers did he walk the second day?

8. How many plums weight as much as one apple (see the picture below)?

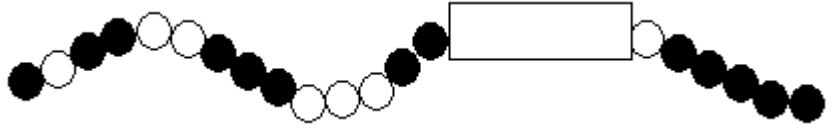


9. Which of the figures below cannot be cut out from this figure:



10. Adam paid \$6 for 15 buns. How many dollars did Tom pay for the same kind of buns if he bought 5 more of them?

11. The first day of a certain month that has 30 days is a Monday. How many Mondays does his month have?



12. Which dots are covered?

- (a) ●●●○
- (b) ●○○○
- (c) ●●○○○○
- (d) ●●●●○
- (e) ●○○●●

13. As Hans wrote the problem on the board, he forgot one digit:

$$23 + 31 + 2 + 12 = 94$$

This digit is:

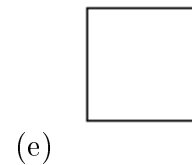
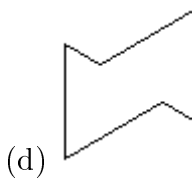
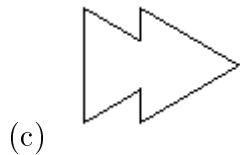
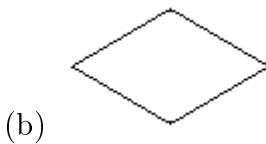
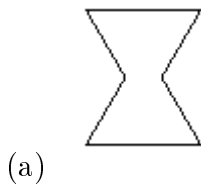
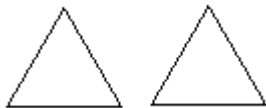
- (a) 3
- (b) 4
- (c) 6
- (d) 8
- (e) 1

14. We place the signs +, - and = between the digits: 4 8 3 3 6 9 in such a way that an equation is built. The sequence of the signs is:

- (a) +, -, =
- (b) -, +, =
- (c) +, +, =
- (d) +, =, -
- (e) -, =, +

15. Jack drew a point on a piece of paper. Next, he drew four different straight lines going through this point. Into how many pieces did those lines divide the paper?

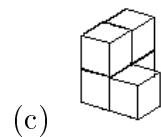
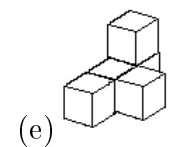
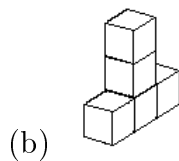
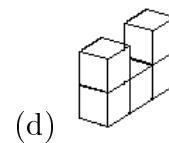
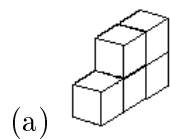
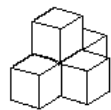
16. Karol is playing with two identical cards which are equilateral triangles, as shown. He is placing them on a clean piece of paper, either partly on top of each other or touching each other, and then he traces the figure. Which figure can he not get this way?



17. In 2008, the Math Kangaroo took place in some school for the seventeenth time. Maggie took part in the seventh Math Kangaroo when she was 10 years old. In what year was Maggie born?
18. Greg likes to multiply by 3, Jim likes to add 2, and Michael likes to subtract 1. In what order should the boys perform their favorite operations, each one only once, so that starting with the number 3 they end up with 14?
19. Grace is taller than Ann, but shorter than Tanie. Irena is taller than Kate, but shorter than Grace. Which of the girls is tallest?



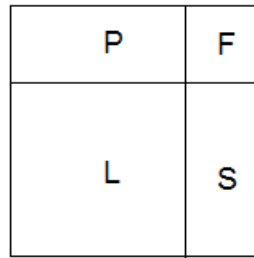
20. Each of the figures A to E show below is made up of 5 blocks. Which of the figures can you not get from the figure below if you move exactly one cube?



21. The sum of two different numbers is 45. At least one of them is less than

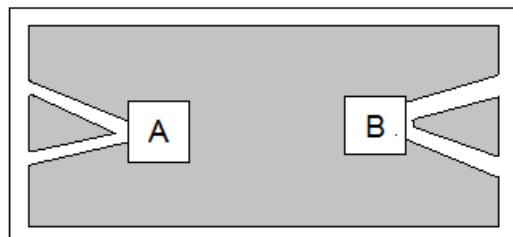
- (a) 5
- (b) 18
- (c) 20
- (d) 22
- (e) 23

22. A square garden was divided into four parts: pool (P), flowerbed (F), lawn (L), and sandbox (S) - see the picture. The lawn and flowerbed are squares. The perimeter of the lawn is 20m, and the perimeter of the flowerbed is 12m. What is the perimeter of the pool?



23. A boy named Peter has as many brothers as sisters. His sister Ann has twice as many brothers as sisters. How many children are there in the family?

24. The botanical garden shown in the picture, visitors walk only on the marked paths. In how many ways can one go from greenhouse A to greenhouse B if you only walk on a given path once?



25. There are altogether 40 liters of water in the two containers. First, 5 liters were poured from the first container to the second, and then enough water was poured from the second container to the first to double the amount of water in the first container. It turned out that at that point, both containers ended up with the same amount of water. How much water was in the second container at the beginning?