

Answers to Math Kangaroo 2007: Level of grade 3, Level of grade 4;

March 15, 2007

** Do not worry if your child did not finish this worksheet in last week's session. This does not mean they are not prepared for Math Kangaroo. We only gave the students 25 minutes to complete as much of the worksheet as possible because we wanted to have time to go over some of the questions with the students in case they did not understand.

Below are all the answers to the worksheet and some explanations for problems that could have been confusing.

1. C
2. A
3. C
4. C; $\$5 - 5(80 \text{ cents}) = \1.00
 - a. $\$1.00$ divided by 30 cents is a little bit more than 3.
5. C; 9 streetlights but only 8 spaces in between. $8 \times 8 \text{ meters} = 64 \text{ meters}$
6. E
7. C; use PEMDAS
 - a. $16 + 4 + 4 + 4 + 4 + 16 = 48$
8. B
9. C
10. C; This is like Sudoku
11. A; While the digits in answers A, D, and E all add up to 9, A is bigger than 2007, (which answer D, 1008 is not) yet smaller than answer E which was 2070.
12. C; We see that the cube has the dimensions $3 \times 3 \times 3$ which means it has a volume of 27 unit cubes. After counting the cubes, we see that there are 10 small cubes already in the big cube. Therefore, $27 - 10 = 17$
13. A; When reading carefully we see that Peter was born on January 1st, 2002. We also see that he is 1 year and 1 day older than Paul. When asked when Paul was born all we have to do is add one year and one day to Peter's birthday. This gives us the answer Jan 2nd, 2003
14. B; don't forget to convert cm into m!!
15. B; $_ _ (\text{two digit \#}) + 19 = 72$; $72 - 19 = 53$; so the first number he wrote was 5
16. A; Immediately eliminate options that would not work by doing quick mental math. You can eliminate answers B, C, and D. You should then test answer A since you know that in 24 hours (answer E) the clock will look the same. This means that the only other possibility is that the same digits could show up in less time.
17. E
18. B
19. C; count the number of white squares and grey squares in each picture. Then count how many squares total there are in each picture.

- a. Picture 1: 3×3 ; 1 grey, 8 white
 - b. Picture 2: 5×5 ; 4 grey, 21 white
 - c. Picture 3: 7×7 ; 9 grey, 40 white
 - d. We can see the dimensions follow an odd number pattern so our next picture should be a 9×9 . We see that the number of grey squares seem to be (picture #)²; therefore, our next number of grey squares should be 16 (4^2). Therefore $(9 \times 9) - 16 = 65$
20. A; first piece of definite information is that Bolek is standing right after Daniel
- i. (Back of the line) B D (Cashier)
- b. Then we can say that because Daniel is standing closer to the cashier than Celina we have...
- i. (Back of the line) C B D (Cashier)
- c. Then we can look back at the problem see that Adam is farther from the cashier than Celina so we have..
- i. (Back of the line) A C B D (Cashier)
- d. It also states that Daniel is not the front of the line so this leaves only one place for Eve to be
- i. (Back of the line) A C B D E (Cashier)
21. A; Four squares with perimeters equal to 8cm means that the length and width of each square is 2cm. Even though the corners were cut out, this does not change the perimeter. Cutting out the corners would only change the area.
22. B
23. D; digits 1-9 = 9 total digits
- a. Numbers 10-99 = $89 + 1 = 90$ numbers
 - i. $90 \text{ numbers} \times 2 = 180$ digits
 - b. Number 100 = 3 digits
 - c. $9 + 180 + 3 = 192$ digits
24. E; if your child struggles to picture this in their head, have them fold multiple squares into 4's and cut off different corners so that they can see how the shape can change.