Math Challenge 10
Solutions

Puzzly Math Problems

1. There are four lady bugs. How many spots are there on all the ladybugs together?

Answer: **3+5+4+6 = 18**

2. Which figure(s) can we build using 8 cubes?

Answer: **A and D**

3. Annie is 7 years old. Her brother is 3 years older than Annie. How old will Annie be when her brother is 12 years old?

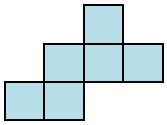
Answer: **9**

4. 

There are 7 flags placed on a straight race track. The first flag is at the start line, and the last flag is at the finish line. If the distance between each flag is 6 yards, how long, in yards, is the track?

Answer: **36 [yards]**

5. Anna glued 6 equal small squares to build the figure below. What is the least number of equal small squares that she needs to add in order to complete a larger square?



Answer: **10**

6.

7		
	6	
	10	

Fill in each box with a number so that the numbers will add up to 18 horizontally, vertically, and diagonally. What is the sum of numbers in the shaded boxes?

Answer: **24**
[7+9+5+3]

7. Nihira wants to cut the shape shown in the Figure A below into identical triangles as shown in Figure B. How many triangles will she get?

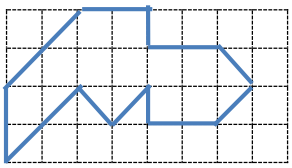


Fig. A

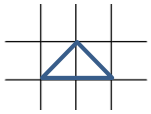


Fig. B

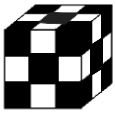
Answer: **14**

8. Laura was writing some numbers in the table. She decides that each row and column will have the number 4, 5, and 6 exactly once. What is the sum of the numbers that she will write in the two shaded squares? *Remember, each row and column will have the number 4, 5, and 6* ***exactly*** *once.*

4		
	5	

Answer: **6 + 4 = 10**

9.* Jason built a cube using 27 small cubes which then were painted either black or white. No two of the small cubes that have the same color were immediately next to each other (see picture). How many white cubes are there?



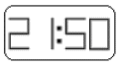
**13 will be acceptable too*

Answer: **12***

Explanation for 12 as a solution:
He built the cube and THEN painted it. If that's the order, it's not possible to paint the cube in the very center of the block white. He can't paint it after building it since the middle cube can't be reached at that point.

10. Every day Meghna writes down the date and calculates the sum of the digits written. For example on May 13 she writes 05/13 and calculates 0+5+1+3 = 9. What is the largest sum that she calculates during a year?
09/29 → 0 + 9 + 2 + 9 = 20

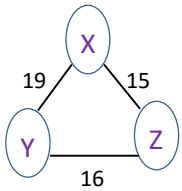
Answer: **20**

11. Looking at his digital clock through a mirror, Sam reads this: 
What does the clock actually read?

A B C D

Answer: **B or 02:15**

12. Letter X, Y and Z represents 3 numbers. A line is drawn between two numbers and the sum of the two numbers is written next to the line. What number does letter Y represent?
We will use the Guess and Check strategy. We will take a guess for number X, find Y and Z under the assumption, then check if Y+Z=16.



Answer: **10**

13. Squally the Squirrel counted her stash of pine cones one morning. She then decided that every day she would double the number of pine cones in her stash in the morning and eat 2 pine cones from her stash in the afternoon. At the end of the 3rd day, there were 34 pine cones. How many pine cones were in her stash when Squally the Squirrel counted on the first morning?
Since we know the final number of pine cones, we will work backwards to find how many were there initially. In the afternoon Sam eats 2 so we add 2 when working backwards. In the morning Sam doubles the number, so when working backwards we divide by 2.
3rd day: end: 34; afternoon: 36; morning: 18
2nd day: end: 18; afternoon: 20; morning: 10
1st day: end: 10; afternoon: 12; morning: 6

Answer: **6**

14. In this addition problem, the same letters represent the same digits, and different letters represent different digits. Which digit does the letter A represent?
Use Guess and Check strategy.

$$\begin{array}{rccc} & & & A \\ & & & A \\ + & & B & B \\ \hline C & & C & C \end{array}$$

Answer: **6**

15. There were 3 times as many girls as boys signed up for a Free-throw Contest. On the day of the contest, 8 girls who signed up for the contest didn't show up, but all of the boys who signed up showed up. At the end, there were twice as many girls as boys at the contest. How many students actually participated in the Free-throw Contest?
Draw it out (draw a model).

Answer: **24**

16. Four men and their four wives are at a dinner party. Everyone except spouses shake hands with everyone else once. How many handshakes are there?
Draw it out (draw a diagram).

Answer: **24**

The end
Come back in fall 2016 for new challenges