General Round

Please put all answers on the provided answer sheet, units are not required.

1. Ariel has n number of seashells. n is a two-digit number that is divisible by 9. When the digits of n are reversed, the number formed is divisible by 5. How many seashells does Ariel have?

Answer: 54

2. Winnie-the-Pooh's honey pot is 5/8 full of honey. He split the rest into three parts and gave one part to each of his two friends, Piglet and Eeyore. He kept the rest for himself in his honey pot and when he went to the store later, doubled what was in his honey pot. How much honey does Winnie-the-Pooh have in his honey pot? Answer as a fraction of his honey pot.

Answer: 5/12

3. Jake Sully has two ways to reach the Tree of Souls. The first way is a 6-mile hike through the forests of Pandora. He can hike 15 mph. The second way is a 10-mile swim through the Northern waters. He can swim 30 mph, except for during the 2 mile stretch when he swims against the currents and can only swim 10 mph. How many minutes faster would it be for Jake Sully to go travel through the forests instead of the waters?

Ans: 4 minutes
Forests = 6/15 hr = 24 min
Water = 8/30 hr + 2/10 hr = 16 min + 12 min = 28 min

4. In Wonderland, there is a deck of standard playing cards with 26 red cards and 26 black cards. The deck is shuffled. What's the probability that the top card is the same color as the bottom card?

Answer: 25/51
There are two cases in which the top and bottom can have the same color: both red or both black.

There is a ½ chance the top card is red. If the top card is red, there is a 25/51 chance the bottom card is also red. There is a 25/102 chance that the top and bottom are both red.

There is a ½ chance the top card is black. If the top card is black, there is a 25/52 chance the bottom card is also black. There is a 25/102 chance that the top and bottom are both black.

Summing these cases = 25/51.

5. Roger has 101 Dalmations (a species of dog). On average they weigh 50 lbs. One day, Cruella steals 15 Dalmations. The average weight of the remaining 86 Dalmations Roger owns is 55 lbs. How heavy is the combined weight of the 15 Dalmations Cruella owns?

Ans: 320
The total weight of the 101 Dalmations is 50 x 101 = 5050
After Cruelle steals 15 Dalmations the total weight of the 86 Dalmations Roger has is 55 x 86 = 4730
Thus, the weight of the other 15 Dalmations Cruella stole is 5050-4730 = 320

6. How many ways are there to arrange the letters in the word GOOFY such that the two OOs are not next to each other? For example, GOFOY is one possible arrangement but GFYOO is not.

Answer: 36
The total number of ways to arrange the 5 letters without restrictions is 5!/2! = 60.
The total number of ways for the O's to be next to each other is 4! (we treat the OO as one entity) = 24.
Thus the answer is 60-24 = 36

7. Aladdin and the Genie are each given a consecutive positive (not 0) integer. Genie says to Aladdin, "I know you don't know my number, but I do know yours", then Aladdin says "Ah hah! But now I know your number!" What is Aladdin's number?

Answer: 2.

The only way for Aladdin to know Genie's number immediately is if he has 1, because then Genie must have 2. Since Genie knows Aladdin doesn't know, he knows Aladdin doesn't have 1. The only way for him to know this, and for him to know Aladdin's number, is if Genies has the number 1, in which case Aladdin has the number 2.

8. Tigger is bouncing across a field. If on each bounce, he travels the same number of meters as the bounce that he's on (such that on his first bounce he travels one meter and on the second bounce he travels two meters and so on). Then how many kilometers will he travel after the first 150 bounces? Round to the nearest hundredth

Answer: 11.33 km
The distance that he travels will be 1+2+3...+148+149+150. Seeing this, you can pair all the numbers into groups of 151. Since it takes two numbers to reach 151 you get 75 pairs of numbers which sets up the final equation of 151*75 which equals 11,325 which becomes 11.33 when made into kilometers and rounded to the nearest hundredth

9. Tinker Bell is painting ladybugs that are numbered 1–999. Every ladybug that has a number with all its digits being even is painted orange. For example, ladybugs 2, 86, and 804 are some of the ladybugs that will be painted orange. All other ladybugs are painted red. How many ladybugs are painted orange?

124
Case 1: 1 digits ⇸ 4
Case 2: 2 digits ⇸ 4 x 5 = 20
Case 3: 3 digits ⇸ 4 x 5 x 5 = 100
4 + 20 + 100 = 124

Or 5 x 5 x 5 = 125, then subtract 1 for 000.

10. Nemo and Marvin are swimming with a school of moonfish. The number of moonfish surrounding Nemo and Marvin is the smallest possible integer that is neither prime nor square and has no prime factors less than 50. How many moonfishes are there?

Ans: 3127
Since the number isn't prime and is not a square, then the number must be the product of the smallest two prime numbers after 50. These are 53 and 59.
53 x 59 = 3127.