



Winter Math Competition 2019

Group Two Sample Problems (Grades 3 - 5)

1. A warehouse has a total of 500 shirts. 120 of them are white shirts, 250 of them are blue shirts, and the rest are bright yellow. Amy picks a random shirt from the warehouse. What is the probability that that shirt is either yellow or white? Express your answer as a common fraction.
2. What is the area of a square with side length 3 units?
3. Samantha has 2 green socks, 3 blue socks, and 4 red socks in her drawer. If Samantha pulls n socks out of her drawer at random without replacement, she is guaranteed to pull at least one sock of each color. What is the least possible value of n ?
4. If $x = 3$, then what is the value of $(x - 5)^2 + 3$?
5. How many numbers are there in the sequence 2, 5, 8, ..., 59?
6. Richard rolls a six-sided die whose faces are numbered from 1 and 6. What is the probability that Richard rolls a prime number? Express your answer as a common fraction.
7. Calculate the value of $5 - 7(5^2 - 3^3)^4$.
8. What is the least possible integer value for n such that $10^n > 9^n + 300$?
9. What is the volume of a cube with surface area 486 cm^2 ?
10. The product of three different positive integers is equal to 7^3 . What is the sum of the three integers?

Group Two Sample Answers

1. $\frac{1}{2}$
2. 9
3. 8
4. 7
5. 20
6. $\frac{1}{2}$
7. -107
8. 4
9. 729 cm³
10. 57