

Round approximate answers to 3 decimal places. Give exact answers when specified.

1. _____ If $f(x, y) = \frac{4y + \sqrt{3xy^3}}{(x-y)^2}$, calculate $f(2.0, 23)$
2. _____ A car's price is originally marked as \$20,000 is reduced in price by 20%, then increased in price by 8%, then decreased by price by 15%. How much is the car's sale price now?
3. _____ Convert 421 liters per day into centiliters per minute.
4. _____ Irina takes out a loan for \$4,500. If she promises to pay the loan back in full in 3 years, but the loan accrues 11% interest compounded quarterly, how much will she have to pay back in total? Round to **2 decimal places!**
5. _____ Compute $\frac{2023 \cdot 20.23}{202^3} + \frac{\sqrt{2023} - 2^3 \sqrt{2023}}{\log(2.023)}$
6. _____ What are the two rightmost digits of 6^{2023} ?
7. _____ In the U.K., today's date of April 20th, would be written as 20/4. If read as a division, this has no remainder! For how many days of the year 2023 will this same non-remainder division of dates be true?
8. _____ On a recent shopping trip, David's family spent money on food, fuel, and furniture in a ratio of 4: 2: 7. If they spent \$266.50 in total, then how much money did they spend on non-food expenses?
9. _____ How many digits are in the number 2023^{182} ?
10. _____ Amy won money from two contests this year: \$2,380 from a lottery and \$7,992 from a sweepstakes. She must pay a 14% "winnings" tax on both contests, as well as a 2.7% tax on the sweepstakes winnings. How much money will she have after she pays her taxes from these contests? Round to **2 decimal places!**
11. _____ If $y = 5^{3.4x}$, then what does x need to be such that $y = 30$?
12. _____ Compute $\sqrt[7]{\sqrt{2022} \times 10^{5138}}$. Write your answer in scientific notation.
13. _____ Calculate $1 + 3 + 5 + 7 + \dots + 2021 + 2023$
14. _____ At a grocery store, one brand of chips is \$3.87 for 9 ounces of chips, while another brand of chips is \$4.35 for 11 ounces of chips. One of these is a better deal than the other. Write the unit price for the better deal.