

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

1. _____ How many digits does 3^{57} have?
2. _____ If $f(x) = 4x^2 - 12x + 13$. Find x such that $f(x) = 30$.
3. _____ Compute $\frac{12 - \sqrt{2012}}{(-12)^3} + \sqrt[5]{\frac{12 - 2012}{(-12)^3}} - \left(\frac{12 - \sqrt{2012}}{-12}\right)^3$
4. _____ Write in scientific notation $(5.2 \times 10^{2012})^{-15}$
5. _____ What is the right-most digit of 3^{2012} ?
6. _____ The speed of light in a vacuum is $c \approx 299,792 \text{ km/s}$. Given that $1 \text{ mi} \approx 1.609 \text{ km}$, convert c into mi/hr .
7. _____ If $f(x) = \ln\left(\frac{12 + 7^x}{\sqrt{x^{3^x}}}\right)$, calculate $f(17)$.
8. _____ Compute: $\cos^{-1}\left(\sin \frac{4\pi}{3}\right)$. **Exact** answer is required.
9. _____ Compute: $\sqrt[7]{\sqrt[5]{\sqrt[3]{\sqrt{3.6015 \times 10^4}}}}$.
10. _____ Compute: $\frac{2}{2 + \frac{2}{2 + \frac{2}{2 + \frac{2}{2}}}}$
11. _____ How many seconds are in a leap year?
12. _____ What is the arithmetic mean of all positive, three digit, odd integers?
13. _____ What is the arithmetic mean of all positive, three digit, even integers?
14. _____ If the angle of depression from the top of a 200 meter high building to the tip of its shadow is 24.7° , what is the length of the building's shadow?