Workout 8

231. $ 1231.66

Beginning January 1st, Marte will put $100 in her savings account at the start of every month. The bank pays 4.8% annual interest compounded monthly (0.4% each month) at the end of each month. Assume the bank rounds the interest amount to the nearest cent. How much money will Marte have in her account at the end of the year? Express your answer to the nearest cent.

232. 21

The number of units in the length of the line segment with endpoints (–4, –5) and (4, 2) is a value between two consecutive positive integers. What is the sum of those two integers?

233. 6

What is the 2012th digit after the decimal point in the decimal expansion of $\frac{8}{81}$?

234. $ 24.57

Tito's bill was $19.50 before the 6% sales tax was added. Tito wants to leave a tip of at least 20% of the bill amount before tax is added. What is the least amount he should pay for the bill, tax and tip?

235. .055

The deck used in the card game Krypto contains three each of cards numbered 1 to 10, two each of cards numbered 11 to 17, and one each of cards numbered 18 to 25. When five cards are dealt from the deck, what is the probability that all five cards will be 10 or less? Express your answer as a decimal to the nearest thousandth.

236. 784

If $5\sqrt{x} - 30 = 2\sqrt{x} + 54$, what is the value of x?

237. 7.48 ft

A rectangular prism has dimensions in the ratio of 1:2:3. If the shortest edge is 2 ft, what is the longest distance between any two vertices? Express your answer as a decimal to the nearest hundredth.

238. 30.25 cm²

An isosceles triangle has sides of length 13 cm, 13 cm and 10 cm. If a square is inscribed in the triangle, as shown, what is the area of the shaded region? Express your answer as a decimal to the nearest hundredth.

239. 0

If $\frac{x^2 + ax + 6}{x + 1} = x + b$ for all positive values of x, what is the value of $6a - 7b$?

240. 1.59 ft

A 6-ft ladder is leaning against a wall so that the base of the ladder makes a 45° angle with the floor. The base of the ladder is then pushed in toward the wall so that its distance from the wall is one-third of what it was originally. In feet, how much farther up the wall does the top of the ladder reach? Express your answer as a decimal to the nearest hundredth.