Exercise 28

Compute the following numbers, applying the significant figure rules adopted in this textbook.

<div align="center">

a. 33.3×25.4 b. $33.3 - 25.4$

c. $\sqrt{33.3}$ d. $333.3 \div 25.4$

</div>

Solution

Part (a)

Both numbers have three significant figures, so the final answer is rounded to three significant figures. This is the rule for multiplication and division.

$$33.3 \times 25.4 \approx 846$$

Part (b)

Both numbers have uncertainty in the tenths place, so the final answer is rounded to the tenths place. This is the rule for addition and subtraction.

$$33.3 - 25.4 \approx 7.9$$

Part (c)

$\sqrt{33.3}$ gives the number that when multiplied by itself twice gives 33.3, which has three significant figures. Because it's multiplication, the final answer needs three significant figures.

$$\sqrt{33.3} \approx 5.77$$

Part (d)

25.4 only has three significant figures, so the final answer has three as well. This is the rule for multiplication and division.

$$\frac{333.3}{25.4} \approx 13.1$$