Prob-Chap01-PHYS-109

1.1. Express the following numbers in scientific notation:

(a) 123
(b) 1230
(c) 12300.0
(d) 0.123
(e) 0.00123
(f) 0.00000123000

1.2. How many significant figures do the following numbers have?

(a) 103.07
(b) 124.5
(c) 0.09916 5
(d) 5.408×10^{5}

1.3. Express the following products in scientific notation:

(a) 123×0.00456
(b) 1230×0.456
(c) 0.0012300×4560.0
(d) 0.01230×456.00

1.5. Express the following sums and differences in scientific notation:

(a) $123 + 456$
(b) $1230 + 0.456$
(c) $123.456 - 123.123$
(d) $123.45678 - 123.123$

1.10. Assume that you can run a 42.195 km marathon in 2 hours, 2 minutes, and 11 seconds (congratulations on setting a new world record). Use dimensional analysis to find an expression for your average speed. Express your average speed in scientific notation in units of (a) km/h; (b) m/s; (c) km/s; (d) m/h; (e) mm/ns