Answer key.

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Physics 11 / 12

Sig Figs Review and Practice

Sample problems

1. How many significant digits are there in each of the following measured quantities?
   (a) 47.2 m 3
   (b) 401.6 kg 4
   (c) 0.000 067 s 2
   (d) 6.00 cm 3
   (e) 46.03 m 4
   (f) 0.000 000 000 68 m 2
   (g) 0.07 m 1
2. Express each of the following numbers in scientific notation with the correct number of significant digits.
   *(a) 76 7.6×10^{1}
   (b) 0.60 6.0×10^{-1}
   (c) 435 4.35×10^{2}
   (d) 5230 (four significant digits) 4 s.f. 5.230×10^{3}
   (e) 2 999 900 (five significant digits) 2.9999×10^{6}
   (f) 0.000 16 1.6×10^{-4}
   (g) 0.000 000 000 32 3.2×10^{-10}
   (h) 760 (two significant figures) 7.6×10^{2}

   *Scientific notation is optional for numbers between 1 and 100, except where the zeros preceding the decimal point create some uncertainty.

Practice

1. State the number of significant digits in each of the following.
   (a) 908 (3) (b) 7.60 3 (c) 0.0050 2 (d) 0.010 2 (e) 760 2
   (f) 0.000 000 000 69 2 (g) 6.743 4
2. Express each of the following in scientific notation. 7.6
   (a) 6.807×10^{3} (b) 0.000 053 (c) 5200 (two significant digits)
   (d) 39 879 280 000 (seven significant digits)
   (e) 0.000 000 000 813 (f) 0.070 40
   (g) 40 000 000 000 (one significant digit)
   (h) 0.80 (i) 68
3. Express each of the following in common notation.
   (a) 7×10^{1} (b) 5.2×10^{3} (c) 8.3×10^{9}
   (d) 10.1×10^{-2} (e) 6.3868×10^{3} (f) 4.086×10^{-3}
   (g) 6.3×10^{2}

PRACTICE ANS SIG key

2.) a) 6.807×10^{3}

b) 5.3×10^{-5}

c) 5.2×10^{3}

d) $3.987\,928 \times 10^{10}$

e) 8.13×10^{-10}

f) 7.040×10^{-2}

g) 4×10^{10}

h) 8.0×10^{7}

i) 6.8×10^{1}

3) a) 70

b) 5200

c) 8 300 000 000

d) 0.101

e) 638 680

f) 0.004 086

g) 630.

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1 a) 493
b) 387.5
c) 1.1×10^2
d) 8.7×10^2
e) 8.6
f) 1.6×10^2
g) 38
h) 3.9×10^3
i) 12
j) 2.2.

2) a) 10^3
b) 10^6
c) 10^7
d) 10^{-4}
e) 10^{-3}
f) 10^{-3}
g) 10^{-8}
h) 10^1 or 70
i) 4×10^3
j) 7.0×10^1
k) 2.0×10^{-7}
l) 1.7×10^4
m) 1.4×10^{-25}
n) 1.8×10^8
o) 3.33×10^{-17}
p) 8.3×10^{-5}
q) 6.0×10^2
r) 4.1

3) 4.0×10^2 Atoms

4) 1.1×10^{25} atoms.