

## Multiplying and Dividing in Standard Form

1. Solve the following. Give your answers in standard form:

a.  $(4 \times 10^3) \times (2 \times 10^5) = 8 \times 10^8$

b.  $(3 \times 10^3) \times (2.5 \times 10^5) = 7.5 \times 10^8$

c.  $(3 \times 10^2) \times (5 \times 10^6) = 1.5 \times 10^9$

d.  $(5 \times 10^7) \times (2.2 \times 10^4) = 1.1 \times 10^{12}$

e.  $(2.1 \times 10^6) \times (3 \times 10^{-4}) = 6.3 \times 10^2$

f.  $(7.3 \times 10^{-3}) \times (4.8 \times 10^{12}) = 3.504 \times 10^{10}$

g.  $(4.27 \times 10^8) \times (8.4 \times 10^3)$

h.  $(4.9 \times 10^{-5}) \times (7.21 \times 10^{-24})$

$= 3.5868 \times 10^{12}$

$= 3.5329 \times 10^{-28}$

2. Solve the following. Give your answers in standard form:

a.  $(8 \times 10^6) \div (2 \times 10^2) = 4 \times 10^4$

b.  $(4.8 \times 10^{15}) \div (4 \times 10^4) = 1.2 \times 10^{11}$

c.  $(5.6 \times 10^8) \div (1.4 \times 10^5) = 4 \times 10^3$

d.  $(8.19 \times 10^{-7}) \div (9.1 \times 10^3) = 9 \times 10^{-11}$

e.  $(2.1 \times 10^{14}) \div (3 \times 10^{-10}) = 7 \times 10^{23}$

f.  $(9.2 \times 10^{-8}) \div (2.3 \times 10^{-3}) = 4 \times 10^{-5}$

g.  $(9.9 \times 10^{25}) \div (3.3 \times 10^{-13})$

h.  $(2.82 \times 10^2) \div (7.05 \times 10^9)$

$= 3 \times 10^{38}$

$= 4 \times 10^{-8}$

3. The distance from Earth to Neptune is  $4.35 \times 10^{12}$  metres. If a satellite travels through space at  $5.8 \times 10^7$  metres per hour, how many hours will it take to reach Neptune? Give your answer in standard form.  $7.5 \times 10^4$  hours

4. There are  $7.4 \times 10^{14}$  bacteria cells in a petri dish. The average mass of each cell is  $6.25 \times 10^{-10}$ . Giving your answers in standard form what is the total mass of the bacteria:

a. in grams?  $4.625 \times 10^5$  g

b. in kilograms?  $4.625 \times 10^2$  kg

5. Hanzah is answering the question  $(3 \times 10^5) \times (5 \times 10^4)$ , giving his answer in standard form.

He gets the answer  $15 \times 10^9$ .

What mistake has he made?  $15 \times 10^9$  is not in standard form because  $15 > 10$ .

What is the correct answer?  $1.5 \times 10^{10}$