Standard Form

1. Write the following numbers in standard form:

a. $3200 = 3.2 \times 10^3$ b. $760 = 7.6 \times 10^2$ c. $4730 = 4.73 \times 10^3$

d. $9300 = 9.3 \times 10^3$ e. $12\,600 = 1.26 \times 10^4$ f. $83\,460 = 8.346 \times 10^4$

g. 48 455 h. 2 500 100 i. 43002

$= 4.8455 \times 10^4$ $= 2.5001 \times 10^6$ $= 4.3002 \times 10^4$

j. 66 010 000 k. 812 000 l. 700 000 000

$= 6.601 \times 10^7$ $= 8.12 \times 10^5$ $= 7 \times 10^8$

2. Write the following numbers in standard form:

a. $0.003 = 3 \times 10^{-3}$ b. $0.00056 = 5.6 \times 10^{-4}$ c. $0.0000006 = 6 \times 10^{-7}$

d. $0.0348 = 3.48 \times 10^{-2}$ e. $0.000042 = 4.2 \times 10^{-5}$ f. $0.00005401 = 5.401 \times 10^{-5}$

g. 0.00521 h. 0.00000326 i. 0.00400032

$= 5.21 \times 10^{-3}$ $= 3.26 \times 10^{-6}$ $= 4.00032 \times 10^{-3}$

j. 0.56 k. 0.00000040002 l. 0.00004802

$= 5.6 \times 10^{-1}$ $= 4.0002 \times 10^{-7}$ $= 4.802 \times 10^{-5}$

3. Convert the following into normal numbers:

a. $2 \times 10^3 = 2000$ b. $7.4 \times 10^2 = 740$ c. $1.835 \times 10^5 = 183\,500$

d. $4.4 \times 10^6 = 4\,400\,000$ e. $3.0012 \times 10^4 = 30012$ f. $5.8302 \times 10^7 = 58\,302\,000$

g. 1.276×10^{-3} h. 5.1×10^{-2} i. 2.74×10^{-5}

$= 0.001276$ $= 0.051$ $= 0.0000274$

j. 9.83×10^{-6} k. 5.001×10^{-4} l. 1.076×10^{-10}

$= 0.00000983$ $= 0.0005001$ $= 0.0000000001076$

4. A water molecule is about 0.00000000027 metres wide. DNA is about 0.000000002 metres wide.

Convert these into standard form. Water = 2.7×10^{-10} DNA = 2×10^{-9}

Which is widest? DNA

5. Sophie converts 0.00027 into standard form. She gets an answer of 27×10^{-5}.

What mistake has she made? 27 does not lie between 1 and 10.

What is the correct answer? 2.7×10^{-4}