

Add and subtract numbers in standard form

1 Work out the totals. Write your answers as ordinary numbers.

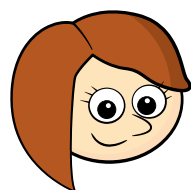
a) $1,000 + 10 + 100,000 =$ 101,010

b) $20,000 + 700 + 300,000 =$ 320,700

c) $106 + 105 + 104 =$ 315

d) $103 + 106 + 105 =$ 314

2 Rosie and Dora are adding numbers in standard form.



Rosie

I think $(2 \times 10^7) + (3 \times 10^7) = 5 \times 10^7$

I disagree. I think $(2 \times 10^7) + (3 \times 10^7) = 5 \times 10^8$

Dora



Do you agree with Rosie or Dora? Rosie

Explain your answer.

$2 \times 10^7 + 3 \times 10^7 = 20,000,000 + 30,000,000 = 50,000,000 = 5 \times 10^7$

Work out the calculations. Give your answers in standard form.

a) $(4 \times 10^6) + (3 \times 10^6)$

$= 7 \times 10^6$

d) $(6.2 \times 10^5) + (3.1 \times 10^5)$

$= 9.3 \times 10^5$

b) $(6 \times 10^{-2}) + (3 \times 10^{-2})$

$= 9 \times 10^{-2}$

e) $(8 \times 10^7) - (3 \times 10^7)$

$= 5 \times 10^7$

c) $(8 \times 10^4) + 10^4$

$= 9 \times 10^4$

f) $(7 \times 10^{-4}) - (3 \times 10^{-4})$

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

3 Amir is adding numbers in standard form.



$(4 \times 10^5) + (8 \times 10^5) = 12 \times 10^5$, but that's not standard form.

Explain how you know $12 \times 10^5 = 1.2 \times 10^6$

$12 \times 10^5 = 1.2 \times 10 \times 10^5 = 1.2 \times 10^6$

Find the answers to the additions.
Give your answers in standard form.

a) $(9 \times 10^6) + (8 \times 10^6) = \underline{1.7 \times 10^7}$ c) $(9 \times 10^{-2}) + (8 \times 10^{-2}) = \underline{1.7 \times 10^{-1}}$

b) $(8 \times 10^4) + (9 \times 10^4) = \underline{1.7 \times 10^5}$ d) $(9 \times 10^{-5}) + (8 \times 10^{-5}) = \underline{1.7 \times 10^{-4}}$

4



To work out $(3.4 \times 10^5) + (4.5 \times 10^4)$, I'm going to change the numbers back to ordinary form.

Here are Jack's workings.

$$\begin{aligned} 3.4 \times 10^5 &= 340,000 \\ 4.5 \times 10^4 &= 45,000 \\ 340,000 \\ + 45,000 \\ \hline 790,000 &= 7.9 \times 10^5 \end{aligned}$$

- a) What mistake has Jack made?
b) Find the correct answer to $(3.4 \times 10^5) + (4.5 \times 10^4)$
Give your answer in standard form.

$\underline{3.85 \times 10^5}$



5

Convert the numbers back to ordinary numbers to work out the calculations. Give your answers in standard form.

a) $(2.5 \times 10^5) + (4.3 \times 10^4)$ b) $(2.5 \times 10^5) + (3.4 \times 10^6)$

$= \underline{2.93 \times 10^5}$

$= \underline{3.65 \times 10^6}$

c) $(1.7 \times 10^{-3}) + (2.7 \times 10^{-2})$

f) $(6.3 \times 10^4) - (5.7 \times 10^3)$

$= \underline{2.87 \times 10^{-2}}$

$= \underline{5.73 \times 10^4}$

d) $(6.8 \times 10^{-3}) + (7.9 \times 10^{-4})$

g) $(6.3 \times 10^{-2}) - (5.7 \times 10^{-3})$

$= \underline{7.59 \times 10^{-3}}$

$= \underline{5.73 \times 10^{-2}}$

e) $(2.5 \times 10^5) - (3.3 \times 10^4)$

h) $(7.4 \times 10^{-4}) - (3.8 \times 10^{-5})$

$= \underline{2.17 \times 10^5}$

$= \underline{7.02 \times 10^{-4}}$

6

- a) The answer to $(8 \times 10^5) + (4 \times 10^4)$ can be written in the form $A \times 10^5$
Circle the correct value of A .

12

1.2

84

8.4

- b) The answer to $(6 \times 10^8) - (3 \times 10^7)$ can be written in the form 5.7×10^n
Circle the correct value of n .

1

7

8

15

