

## HOMEWORK

Write each of the following in index form  
 a)  $7 \times a \times a \times a \times 3 \times b \times b \times a \times 5 \times c \times c \times a \rightarrow 7 \cdot 3 \cdot 5 \cdot a^3 \cdot b^2 \cdot c^2 \times 175 \times 105 a^5 b^2 c^2 \checkmark$   
 b)  $3^2 \cdot 2 \cdot a \cdot b \cdot c \cdot 2 \cdot a \cdot b \cdot c \rightarrow 18 a^2 b^2 c^2 \checkmark$   
 (note:  $3^2$  means three squared)

TASK #2 OF HOMEWORK:  
 Complete questions 8 b to f (following the same process done above for part a).

8. Write each of the following numbers as a product of its prime factors, using indices.

a. 64

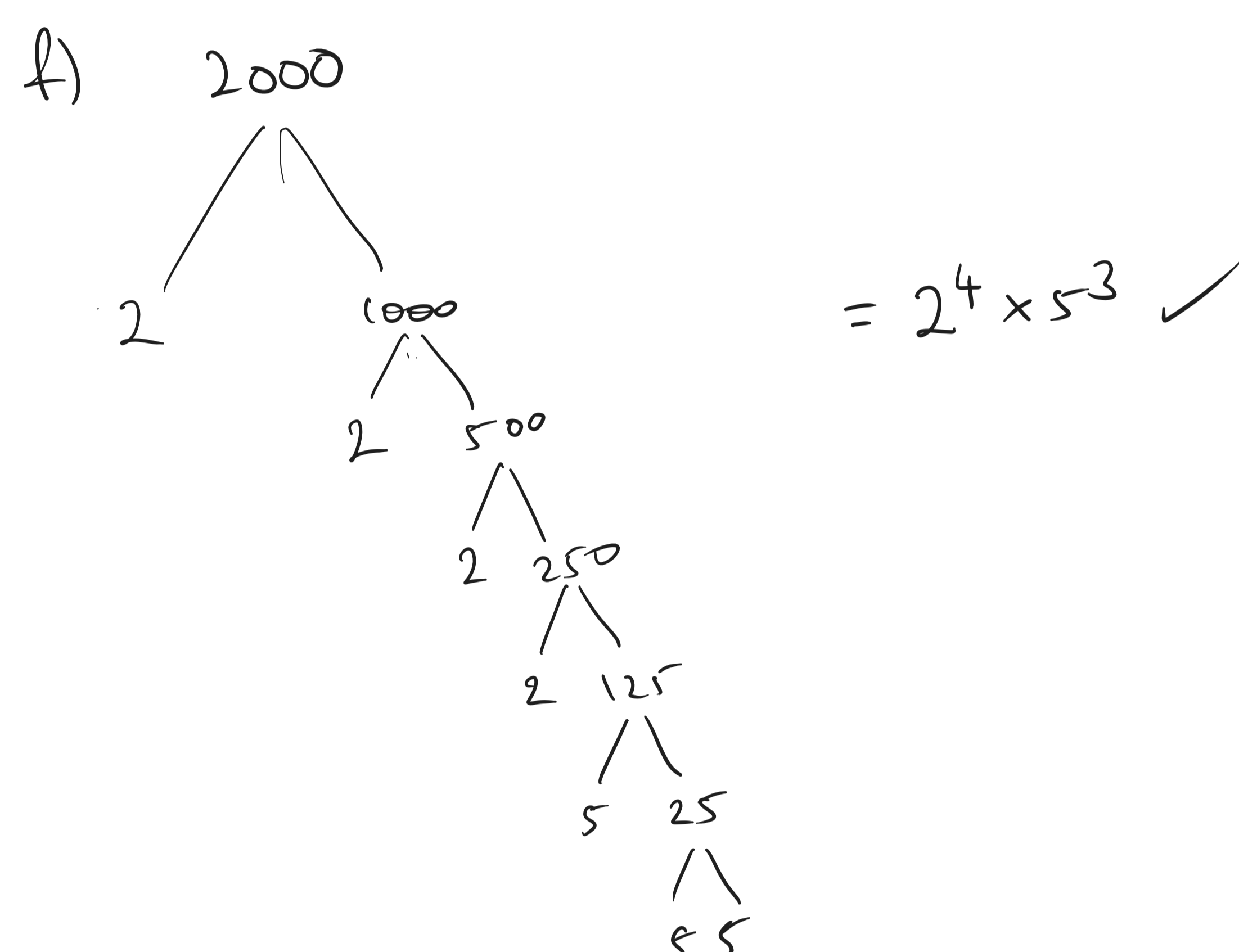
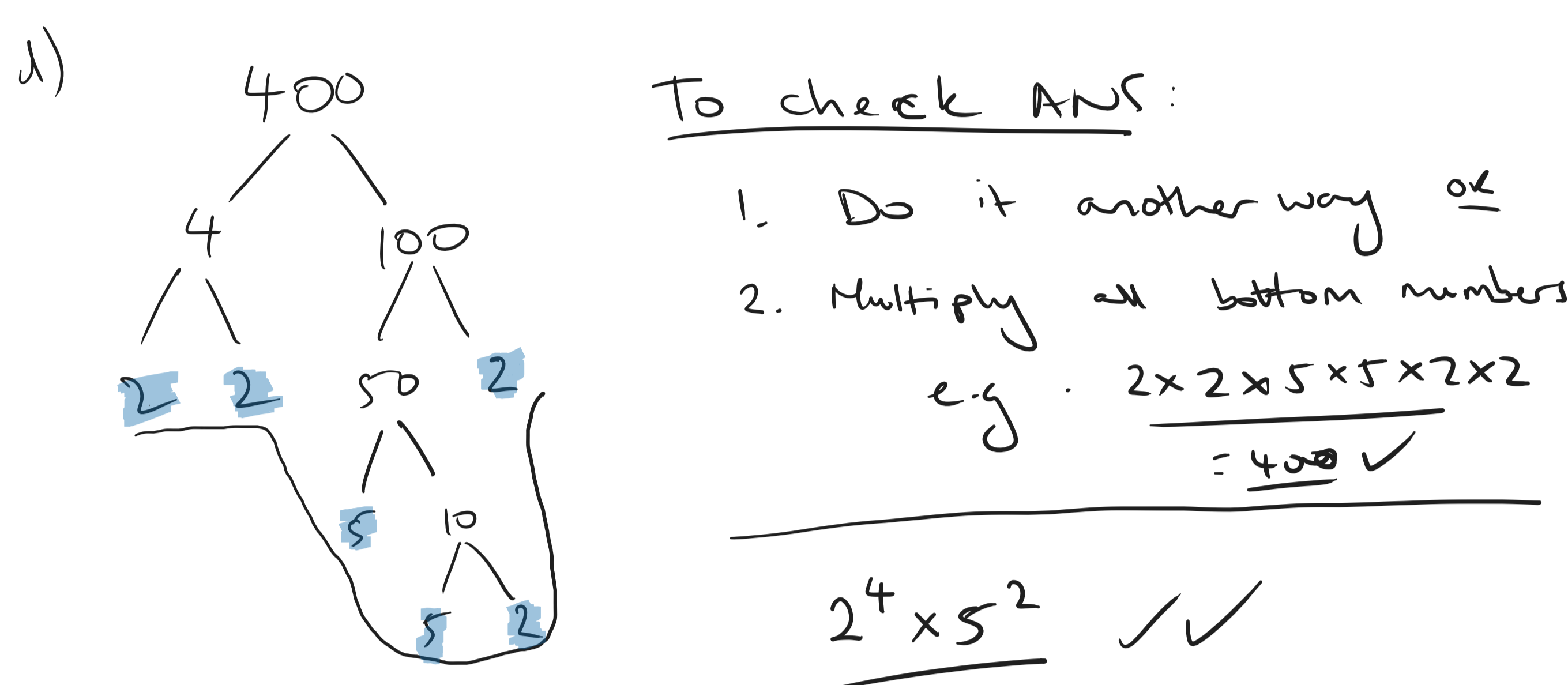
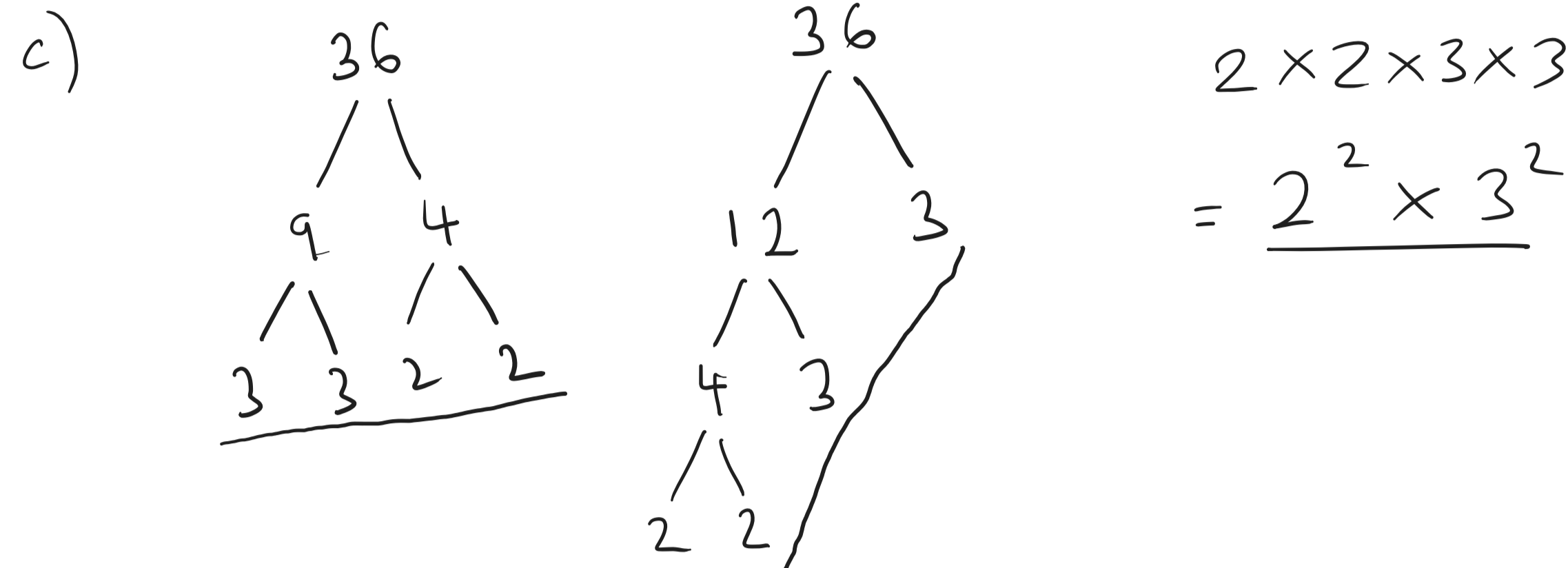
b. 40

c. 36

d. 400

e. 225

f. 2000



9. numeral  $\rightarrow$  number  
 variable  $\rightarrow$  letter (eg. 'x') - varies

$2^3 \times 3 \times 5 \rightarrow$  basic numeral.  
 $= 8 \times 3 \times 5$   
 $= 8 \times 15$   
 $= 120 \checkmark$

break NUMAS it:  
 $2^3 \times 3 \times 5$   
 $6^2 \times 5 \times$

e.  $3^2 \times 5^2 \times 7$   
 $= 9 \times 25 \times 7$   
 $= 225 \times 7$   
 $= 1575 \checkmark$

10) base  $\leftarrow$  index

i) 10

$= 10^1$

ii) 100

$10^2$

iii) 1000

$10^3$

iv) 1,000,000

$10^6$

$10 \times 10 \times 10 \times 10 \times 10 \times 10$   
 $100$   
 $1,000$   
 $10,000$   
 $100,000$   
 $1,000,000$

scientific calculator NOTATION

$10^{40} = 1 \times 10^{40} = 1.e+40$

$10^{40}$  in scientific calc on computer

IS:  $10^{40}$

$1 \rightarrow \boxed{\text{Shift}} + \boxed{6}$

$500 \rightarrow \frac{5}{\text{hundreds}} \times 10^2 + \frac{0}{\text{tens}} \times 10^1 + \frac{0}{\text{ones (not 0)}} \times 10^0$

check:  $5 \times 100 + 0 \times 10 + 0 \times 1 = 500 \checkmark$

$470 \rightarrow \frac{4}{0 \times 1} \times 10^2 + \frac{7}{0} \times 10^1 + \frac{0}{0} \times 10^0$

$2360 \rightarrow \frac{2}{0} \times 10^3 + \frac{3}{0} \times 10^2 + \frac{6}{0} \times 10^1 + \frac{0}{0} \times 10^0$

c. Write each of the following as a basic numeral.

i.  $7 \times 10^4 + 5 \times 10^3$

$7 \times 10,000 + 5 \times 1,000 = 75,000.$

ii.  $3 \times 10^4 + 6 \times 10^2$

iii.  $5 \times 10^6 + 2 \times 10^5 + 4 \times 10^2 + 8 \times 10^1$

## HOMEWORK

### task #1

b. Use your knowledge of place value to rewrite each of the following basic numerals in expanded form using powers of 10. The first number has been done for you.

	Basic numeral	Expanded form
i.	230	$2 \times 10^2 + 3 \times 10^1$
ii.	500	$5 \times 10^2$
iii.	470	$4 \times 10^2 + 7 \times 10^1$
iv.	2360	$2 \times 10^3 + 3 \times 10^2 + 6 \times 10^1 + 0 \times 10^0$
v.	1980	$1 \times 10^3 + 9 \times 10^2 + 8 \times 10^1 + 0 \times 10^0$
vi.	5430	$5 \times 10^3 + 4 \times 10^2 + 3 \times 10^1 + 0 \times 10^0$

### task #2

c. i) and c. iii)