

# Stage 7

## Multiplication & Division Pamphlet

**Stage 7**  
Multiplication & Division Strategies

**Using compensation from tidy numbers**

$8 \times 998 = \square$

Create a tidy number      $8 \times 1000 = 8000$   
Now compensate      $8000 - (2 \times 8)$   
                                  $8000 - 16 = 7984$

so  $8 \times 998 = 7984$




**Stage 7**  
Multiplication & Division Strategies

**Using compensation from tidy numbers**

$96 \div 4 = \square$

Create a tidy number      $100 \div 4 = 25$   
Now compensate      $25 - 1$  (1 lot of 4)  
                                  $25 - 1 = 24$

so  $96 \div 4 = 24$




**Stage 7**  
Multiplication & Divisions Strategies

**Using place value**

$23 \times 7 = \square$

Expand the numbers into 10s & 1s  
 $(20 \times 7) + (3 \times 7) =$   
Now solve and recombine  
 $140 + 21 = 161$

so  $23 \times 7 = 161$




**Stage 7**  
Multiplication & Division Strategies

**Using reversibility**

$92 \div 4 = \square$

Write as ...  
 $4 \times \square = 92$

Use fact knowledge to solve  
I know that  $10 \times 4 = 40$ , so  $20 \times 4$  is 80,  
which leaves me 12. I know that  $3 \times 4$  is 12.  
That means that  $4 \times 23$  is 92.



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**Using commutativity**

$16 \times 6 = \square$

Write the equation as ...  
 $6 \times 16 = \square$

So instead of having 16 lots of 6  
 $(6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6)$   
Have 6 lots of 16  
 $(16 + 16 + 16 + 16 + 16 + 16)$   
Double 16 is 32 and 3 lots of 32 is 96  
so  $16 \times 6 = 96$



**Stage 7**  
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**Using proportional adjustment**

$4 \times 18 = \square$


Double and halve the equation  
Double 4     Halve 18  
 $8 \times 9 = 72$

so  $4 \times 18 = 72$

For division questions multiply the divisor  
and the resulting answer by the same amount

$81 \div 3 \rightarrow (81 \div 9) \times 3 \rightarrow 9 \times 3$

so  $81 \div 3 = 9 \times 3 = 27$



**Stage 7**  
Multiplication & Division Strategies

**Using working form**  
To be used when numbers are too difficult or untidy.

$87 \times 93 = \square$

Standard Form	Napier's Multiplication
$\begin{array}{r} \phantom{0}87 \\ \times 93 \\ \hline 1261 \\ + 7830 \\ \hline 8091 \end{array}$	$\begin{array}{r} 87 \times \\ \begin{array}{ c c c } \hline 7 & 6 & 9 \\ \hline 2 & 2 & 3 \\ \hline 2 & 4 & 1 & 3 \\ \hline \end{array} \\ \hline 8091 \end{array}$

