

Homework/Extension

Step 14: Mental Calculations

National Curriculum Objectives:

Mathematics Year 6: (6C6) [Perform mental calculations, including with mixed operations and large numbers](#)

Differentiation:

Questions 1, 4 and 7 (Varied Fluency)

Developing Tick the most efficient order to work out a calculation. Includes up to 4-digit numbers and up to 3 steps per calculation. Useful facts given within each question.

Numerals only.

Expected Tick the most efficient order to work out a calculation. Includes four operations with up to 4-digit numbers and up to 3 steps per calculation. Numerals only.

Greater Depth Tick the most efficient order to work out a calculation. Includes four operations with up to 4-digit numbers and up to four steps per calculation and mixed operations within a number sentence. Numerals and words.

Questions 2, 5 and 8 (Varied Fluency)

Developing Write a suitable calculation to find an approximate answer to a calculation. Includes up to 4-digit numbers and 2 steps per calculation. Useful facts given within each question.

Expected Write a suitable calculation to find an approximate answer to a calculation. Includes up to 4-digit numbers including decimal numbers in context and 3 steps per calculation.

Greater Depth Write a suitable calculation to find an approximate answer to a calculation. Includes up to 4-digit numbers including decimal numbers in context. Includes four steps per calculation and mixed operations within a number sentence.

Questions 3, 6 and 9 (Reasoning and Problem Solving)

Developing Find a more efficient method to solve a calculation. Includes up to 4-digit numbers. Useful facts given within each question. Numerals only.

Expected Find a more efficient method to solve a calculation. Includes up to 4-digit numbers. Numerals only.

Greater Depth Find a more efficient method to solve a calculation. Includes up to 4-digit numbers. Includes four steps per calculation and mixed operations within a number sentence. Numerals and words.

More [Year 6 Four Operations](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Mental Calculations

1. Tick the most efficient order to work out each calculation using the key facts.

- | | | |
|---|----------------------------|----------------------------|
| 1 | A. $60 \times 6 \times 20$ | B. $60 \times 20 \times 6$ |
| 2 | A. $30 \times 4 \times 60$ | B. $60 \times 30 \times 4$ |
| 3 | A. $60 \times 5 \times 30$ | B. $5 \times 30 \times 60$ |
| 4 | A. $70 \times 2 \times 60$ | B. $70 \times 60 \times 2$ |

Key Facts
$6 \times 2 = 12$
$6 \times 3 = 18$
$6 \times 4 = 24$
$6 \times 5 = 30$
$6 \times 6 = 36$
$6 \times 7 = 42$
$6 \times 8 = 48$
$6 \times 9 = 54$
$6 \times 10 = 60$
$6 \times 11 = 66$
$6 \times 12 = 72$



VF
HW/Ext

2. Marvin wants to buy the items below for his office.

Key Facts
$1,000 - 1,499$ rounds down to 1,000
$1,500 - 1,999$ rounds up to 2,000



£1,235



£1,796

Write a mental calculation you could use to find their approximate total price.

$$\boxed{} + \boxed{} = \boxed{}$$



VF
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3. Freya subtracted the numbers 60 and 30 from 830. Her working out is shown below.



	7 8	1	3	0
			3	0
-			6	0
			7	4
			0	0

Key Facts
$10 + 90 = 100$
$20 + 80 = 100$
$30 + 70 = 100$
$40 + 60 = 100$
$50 + 50 = 100$

Is there a more efficient way of solving this calculation? Convince me.



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Mental Calculations

4. Tick the most efficient order to work out each calculation below.

1 A. $4,200 \div 2 \div 60$

B. $60 \div 2 \div 4,200$

C. $4,200 \div 60 \div 2$

2 A. $3,079 + 6,921 + 2,156$

B. $2,156 + 3,079 + 6,921$

C. $6,921 + 2,156 + 3,079$

3 A. $250 \times 37 \times 4$

B. $250 \times 4 \times 37$

C. $37 \times 4 \times 250$

4 A. $2,596 - 965 - 596$

B. $965 - 2,596 - 596$

C. $2,596 - 596 - 965$



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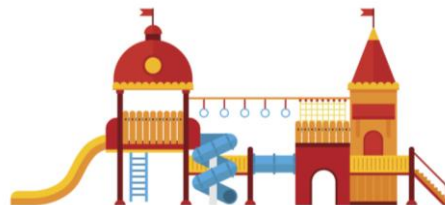
5. Alfie wants to buy the items below for his funfair event.



£1,525.99



£975.50



£4,899.05

Write a mental calculation you could use to find their approximate total price.



VF
HW/Ext

6. Asha multiplied the numbers 120, 4 and 5. Her working out is shown below.



1	2	0	x	4	=	4	8	0
	4	8	0					
x			5					
2	4	0	0					
	4							

Are there more efficient ways of solving this calculation? Convince me.



RPS
HW/Ext

Mental Calculations

7. Tick the most efficient order to work out each calculation below.

1 A. $6,817 - 2,945 + 3,183$

B. $3,183 - 2,945 + 6,817$

C. $6,817 + 3,183 - 2,945$

2 A. $70 \div 2 \times \text{thirty} \times 4$

B. $70 \times \text{thirty} \times 4 \div 2$

C. $\text{thirty} \div 2 \times 70 \times 4$

3 A. $4,281 - 2,625 + 3,719$

B. $2,625 + 3,719 - 4,281$

C. $4,281 + 3,719 - 2,625$

4 A. $25 \times 8 \times \text{twelve} \div 3$

B. $\text{twelve} \times 25 \times 8 \div 3$

C. $8 \times \text{twelve} \div 3 \times 25$



VF
HW/Ext

8. Leon wants to buy a watch, some earrings and a ring from a designer jewellery store. He needs to return the necklace for a refund.

<p style="margin: 0;">Buy</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <div style="border: 1px solid black; padding: 5px; width: 100px; margin: 5px auto;">£5,899.05</div> </div> <div style="text-align: center;">  <div style="border: 1px solid black; padding: 5px; width: 100px; margin: 5px auto;">£1,097.95</div> </div> <div style="text-align: center;">  <div style="border: 1px solid black; padding: 5px; width: 100px; margin: 5px auto;">£3,716.99</div> </div> </div>			<p style="margin: 0;">Return</p> <div style="text-align: center;">  <div style="border: 1px solid black; padding: 5px; width: 100px; margin: 5px auto;">£2,689.90</div> </div>
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Write a mental calculation you could use to find the approximate price he must pay.



VF
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9. Samuel multiplied the numbers forty and twelve, divided his answer by three then multiplied this by fifty.



4	0	x	1	2	=	4	8	0		
			1	6	0		1	6	0	
3			4	8	0	x			5	
								8	0	0
									3	
8	0	0	x	1	0	=	8	0	0	0

Are there more efficient ways of solving this calculation? Convince me.



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Homework/Extension

Mental Calculations

Developing

1. 1B, 2A, 3A, 4B
2. $£1,000 + £2,000 = £3,000$
3. Yes, Freya could have subtracted 30 from 830 first to get 800, then used key number bond facts to subtract 60 from 800 to get the answer 840.

Expected

4. 1C, 2A, 3B, 4C
5. Various answers, for example: $£1,500 + £1,000 + £5,000 = £7,500$
6. Yes, Asha could have used known tables facts to solve this calculation. You could do $4 \times 5 = 20$ and $20 \times 120 = 2,400$ or you could work out $120 \times 5 = 600$ then $600 \times 4 = 2,400$.

Greater Depth

7. 1C, 2B, 3C, 4A
8. Various answers, for example: $£5,900 + £1,100 + £3,700 - £2,700 = £8,000$
9. Yes, Samuel could have used known tables facts to solve this calculation. You could do $40 \times 50 = 2,000$ then $2,000 \times 12 = 24,000$ and $24,000 \div 3 = 8,000$ or you could do $50 \times 12 = 600$ then $600 \times 40 = 24,000$ and $24,000 \div 3 = 8,000$. You could also do $50 \times 12 = 600$ then $600 \div 3 = 200$ and $200 \times 40 = 8,000$.