



# MATHEMATICS



**N.S. Yr. 4 P.62**

**Use known facts to calculate mentally**

## Equipment

Paper, pencil, ruler

# MathSphere

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## **Concepts**

This module re-inforces some of the mental methods used to create fast, accurate answers.

Multiplying by 9 can be completed mentally by multiplying by ten and then subtracting the original number.

Multiplying by 11 can be done in the same way, but adding the original number.

When multiplying a two digit number by a single digit, mentally, it is important to emphasise that it is usually easier to multiply the tens first and then the units – the opposite to the way we do the same sum by traditional paper and pencil methods.

Once again the relationship between multiplication and division is shown and by year 4 children should be confident in writing four different multiplication and division statements from given numbers.

### Multiply by 9



Did you know that you can multiply by nine by multiplying by ten and then subtracting the number!

eg  $23 \times 9 = (23 \times 10) - 23 = 230 - 23 = 207$

Try these:

1.  $45 \times 9 = (45 \times 10) - 45 = \boxed{\phantom{000}} - 45 = \boxed{\phantom{000}}$

2.  $14 \times 9 = (14 \times 10) - 14 = \boxed{\phantom{000}} - 14 = \boxed{\phantom{000}}$

3.  $26 \times 9 = (26 \times 10) - 26 = \boxed{\phantom{000}} - 26 = \boxed{\phantom{000}}$

4.  $68 \times 9 = (68 \times 10) - 68 = \boxed{\phantom{000}} - 68 = \boxed{\phantom{000}}$

5.  $17 \times 9 = (17 \times 10) - 17 = \boxed{\phantom{000}} - 17 = \boxed{\phantom{000}}$

6.  $28 \times 9 = (28 \times 10) - 28 = \boxed{\phantom{000}} - 28 = \boxed{\phantom{000}}$

7.  $48 \times 9 = (48 \times 10) - 48 = \boxed{\phantom{000}} - 48 = \boxed{\phantom{000}}$

8.  $35 \times 9 = (35 \times 10) - 35 = \boxed{\phantom{000}} - 35 = \boxed{\phantom{000}}$

### Multiply by 9



Did you know that you can multiply by nine by multiplying by ten and then subtracting the number!

eg  $24 \times 9 = (24 \times 10) - 24 = 240 - 24 = 216$

Try these:

1.  $46 \times 9 = (46 \times 10) - 46 = \boxed{\phantom{000}} - 46 = \boxed{\phantom{000}}$

2.  $13 \times 9 = (13 \times 10) - 13 = \boxed{\phantom{000}} - 13 = \boxed{\phantom{000}}$

3.  $28 \times 9 = (28 \times 10) - 28 = \boxed{\phantom{000}} - 28 = \boxed{\phantom{000}}$

4.  $65 \times 9 = (65 \times 10) - 65 = \boxed{\phantom{000}} - 65 = \boxed{\phantom{000}}$

5.  $16 \times 9 = (16 \times 10) - 16 = \boxed{\phantom{000}} - 16 = \boxed{\phantom{000}}$

6.  $29 \times 9 = (29 \times 10) - 29 = \boxed{\phantom{000}} - 29 = \boxed{\phantom{000}}$

7.  $46 \times 9 = (46 \times 10) - 46 = \boxed{\phantom{000}} - 46 = \boxed{\phantom{000}}$

8.  $55 \times 9 = (55 \times 10) - 55 = \boxed{\phantom{000}} - 55 = \boxed{\phantom{000}}$

**Multiply by 11**

To multiply by 11, just multiply by 10 and then add the number on.  
Easy!

eg  $24 \times 11 = (24 \times 10) + 24 = 240 + 24 = 264$

Try these:

1.  $43 \times 11 = (43 \times 10) + 43 = \boxed{\phantom{000}} + 43 = \boxed{\phantom{000}}$

2.  $16 \times 11 = (16 \times 10) + 16 = \boxed{\phantom{000}} + 16 = \boxed{\phantom{000}}$

3.  $24 \times 11 = (24 \times 10) + 24 = \boxed{\phantom{000}} + 24 = \boxed{\phantom{000}}$

4.  $69 \times 11 = (69 \times 10) + 69 = \boxed{\phantom{000}} + 69 = \boxed{\phantom{000}}$

5.  $22 \times 11 = (22 \times 10) + 22 = \boxed{\phantom{000}} + 22 = \boxed{\phantom{000}}$

6.  $39 \times 11 = (39 \times 10) + 39 = \boxed{\phantom{000}} + 39 = \boxed{\phantom{000}}$

7.  $62 \times 11 = (62 \times 10) + 62 = \boxed{\phantom{000}} + 62 = \boxed{\phantom{000}}$

8.  $44 \times 11 = (44 \times 10) + 44 = \boxed{\phantom{000}} + 44 = \boxed{\phantom{000}}$

**Multiply by 11**

To multiply by 11, just multiply by 10 and then add the number on.  
Easy!

eg  $24 \times 11 = (24 \times 10) + 24 = 240 + 24 = 264$

Try these:

1.  $52 \times 11 = (52 \times 10) + 52 = \boxed{\phantom{000}} + 52 = \boxed{\phantom{000}}$

2.  $25 \times 11 = (25 \times 10) + 25 = \boxed{\phantom{000}} + 25 = \boxed{\phantom{000}}$

3.  $36 \times 11 = (36 \times 10) + 36 = \boxed{\phantom{000}} + 36 = \boxed{\phantom{000}}$

4.  $76 \times 11 = (76 \times 10) + 76 = \boxed{\phantom{000}} + 76 = \boxed{\phantom{000}}$

5.  $33 \times 11 = (33 \times 10) + 33 = \boxed{\phantom{000}} + 33 = \boxed{\phantom{000}}$

6.  $49 \times 11 = (49 \times 10) + 49 = \boxed{\phantom{000}} + 49 = \boxed{\phantom{000}}$

7.  $71 \times 11 = (71 \times 10) + 71 = \boxed{\phantom{000}} + 71 = \boxed{\phantom{000}}$

8.  $64 \times 11 = (64 \times 10) + 64 = \boxed{\phantom{000}} + 64 = \boxed{\phantom{000}}$

**Multiply two digits by one**

When doing these sums, multiply the tens digit first and then the units – all in your head!  
Work as quickly as you can!

eg  $23 \times 3 = (20 \times 3) + (3 \times 3) = 60 + 9 = 69$

1.  $23 \times 2 =$

2.  $31 \times 3 =$

3.  $22 \times 4 =$

4.  $21 \times 2 =$

5.  $32 \times 3 =$

6.  $24 \times 4 =$

7.  $31 \times 5 =$

8.  $26 \times 6 =$

9.  $42 \times 5 =$

10.  $16 \times 5 =$

11.  $26 \times 3 =$

12.  $23 \times 4 =$

13.  $52 \times 6 =$

14.  $31 \times 4 =$

15.  $22 \times 6 =$

16.  $33 \times 4 =$

17.  $36 \times 3 =$

18.  $21 \times 4 =$

**Multiply two digits by one**

When doing these sums, multiply the tens digit first and then the units – all in your head!  
Work as quickly as you can!

eg  $23 \times 3 = (20 \times 3) + (3 \times 3) = 60 + 9 = 69$

1.  $32 \times 2 =$

2.  $16 \times 3 =$

3.  $23 \times 4 =$

4.  $26 \times 2 =$

5.  $33 \times 3 =$

6.  $16 \times 4 =$

7.  $32 \times 5 =$

8.  $24 \times 6 =$

9.  $41 \times 5 =$

10.  $17 \times 5 =$

11.  $23 \times 3 =$

12.  $29 \times 4 =$

13.  $51 \times 6 =$

14.  $32 \times 4 =$

15.  $23 \times 6 =$

16.  $31 \times 4 =$

17.  $35 \times 3 =$

18.  $26 \times 4 =$



**Relationship between multiplication and division**

I expect you already know this, but.....

If you know that  $16 \times 4 = 64$  then you can make up three other sums:

$$4 \times 16 = 64$$

$$64 \div 4 = 16 \quad \text{and}$$

$$64 \div 16 = 4$$

**Make up three other sums from each of these:**

1.  $13 \times 5 = 65$

2.  $14 \times 7 = 98$

3.  $15 \times 9 = 135$

4.  $16 \times 6 = 96$

5.  $17 \times 8 = 136$

6.  $18 \times 7 = 126$

**Relationship between multiplication and division**

Easy page, this one!

If you know that  $12 \times 3 = 36$  then you can make up three other sums:

$$3 \times 12 = 36$$

$$36 \div 3 = 12 \quad \text{and}$$

$$36 \div 12 = 3$$

**Make up three other sums from each of these:**

1.  $14 \times 5 = 70$

2.  $15 \times 7 = 105$

3.  $16 \times 9 = 144$

4.  $17 \times 6 = 102$

5.  $18 \times 8 = 144$

6.  $19 \times 7 = 133$

**Make your own up!**

**Make up 2 multiplication and 2 division statements, (or sums) from the following sets of numbers:**

**1. 5, 9, 45**

**2. 8, 13, 104**

**3. 11, 13, 143**

**4. 12, 15, 180**

**5. 15, 20, 300**

**6. 6, 17, 102**

**Make your own up!**

**Make up 2 multiplication and 2 division statements, (or sums) from the following sets of numbers:**

**1. 6, 16, 96**


**2. 7, 14, 98**


**3. 8, 16, 128**


**4. 9, 18, 162**


**5. 11, 15, 165**


**6. 12, 17, 204**


**Answers****Page 3**

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|-------------|-------------|-------------|-------------|
| 1. 450, 405 | 2. 140, 126 | 3. 260, 234 | 4. 680, 612 |
| 5. 170, 153 | 6. 280, 252 | 7. 480, 432 | 8. 350, 315 |

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|-------------|-------------|-------------|-------------|
| 1. 460, 414 | 2. 130, 117 | 3. 280, 252 | 4. 650, 585 |
| 5. 160, 144 | 6. 290, 261 | 7. 460, 414 | 8. 550, 495 |

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|-------------|-------------|-------------|-------------|
| 1. 430, 473 | 2. 160, 176 | 3. 240, 264 | 4. 690, 759 |
| 5. 220, 242 | 6. 390, 429 | 7. 620, 682 | 8. 440, 484 |

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|-------------|-------------|-------------|-------------|
| 1. 520, 572 | 2. 250, 275 | 3. 360, 396 | 4. 760, 836 |
| 5. 330, 363 | 6. 490, 539 | 7. 710, 781 | 8. 640, 704 |

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|--------|--------|--------|---------|---------|---------|---------|---------|--------|
| 1. 46  | 2. 93  | 3. 88  | 4. 42   | 5. 96   | 6. 96   | 7. 155  | 8. 156  | 9. 210 |
| 10. 80 | 11. 78 | 12. 92 | 13. 312 | 14. 124 | 15. 132 | 16. 132 | 17. 108 | 18. 84 |

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|--------|--------|---------|---------|---------|---------|---------|---------|---------|
| 1. 64  | 2. 48  | 3. 92   | 4. 52   | 5. 99   | 6. 64   | 7. 160  | 8. 144  | 9. 205  |
| 10. 85 | 11. 69 | 12. 116 | 13. 306 | 14. 128 | 15. 138 | 16. 124 | 17. 105 | 18. 104 |

**Page 9**

1.  $5 \times 13 = 65$ ,  $65 \div 5 = 13$ ,  $65 \div 13 = 5$    2.  $7 \times 14 = 98$ ,  $98 \div 7 = 14$ ,  $98 \div 14 = 7$   
 3.  $9 \times 15 = 135$ ,  $135 \div 9 = 15$ ,  $135 \div 15 = 9$    4.  $6 \times 16 = 96$ ,  $96 \div 6 = 16$ ,  $96 \div 16 = 6$   
 5.  $8 \times 17 = 136$ ,  $136 \div 8 = 17$ ,  $136 \div 17 = 8$    6.  $7 \times 18 = 126$ ,  $126 \div 7 = 18$ ,  $126 \div 18 = 7$

**Page 10**

1.  $5 \times 14 = 70$ ,  $70 \div 5 = 14$ ,  $70 \div 14 = 5$    2.  $7 \times 15 = 105$ ,  $105 \div 7 = 15$ ,  $105 \div 15 = 7$   
 3.  $9 \times 16 = 144$ ,  $144 \div 9 = 16$ ,  $144 \div 16 = 9$    4.  $6 \times 17 = 102$ ,  $102 \div 6 = 17$ ,  $102 \div 17 = 6$   
 5.  $8 \times 18 = 144$ ,  $144 \div 8 = 18$ ,  $144 \div 18 = 8$    6.  $7 \times 19 = 133$ ,  $133 \div 7 = 19$ ,  $133 \div 19 = 7$

**Page 11**

1.  $5 \times 9 = 45$ ,  $9 \times 5 = 45$ ,  $45 \div 9 = 5$ ,  $45 \div 5 = 9$   
 2.  $8 \times 13 = 104$ ,  $13 \times 8 = 104$ ,  $104 \div 8 = 13$ ,  $104 \div 13 = 8$   
 3.  $11 \times 13 = 143$ ,  $13 \times 11 = 143$ ,  $143 \div 11 = 13$ ,  $143 \div 13 = 11$   
 4.  $12 \times 15 = 180$ ,  $15 \times 12 = 180$ ,  $180 \div 12 = 15$ ,  $180 \div 15 = 12$   
 5.  $15 \times 20 = 300$ ,  $20 \times 15 = 300$ ,  $300 \div 15 = 20$ ,  $300 \div 20 = 15$   
 6.  $6 \times 17 = 102$ ,  $17 \times 6 = 102$ ,  $102 \div 6 = 17$ ,  $102 \div 17 = 6$

## Answers

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1.  $6 \times 16 = 96$ ,  $16 \times 6 = 96$ ,  $96 \div 16 = 6$ ,  $96 \div 6 = 16$
2.  $7 \times 14 = 98$ ,  $14 \times 7 = 98$ ,  $98 \div 7 = 14$ ,  $98 \div 14 = 7$
3.  $8 \times 16 = 128$ ,  $16 \times 8 = 128$ ,  $128 \div 8 = 16$ ,  $128 \div 16 = 8$
4.  $9 \times 18 = 162$ ,  $18 \times 9 = 162$ ,  $162 \div 18 = 9$ ,  $162 \div 9 = 18$
5.  $11 \times 15 = 165$ ,  $15 \times 11 = 165$ ,  $165 \div 15 = 11$ ,  $165 \div 11 = 15$
6.  $12 \times 17 = 204$ ,  $17 \times 12 = 204$ ,  $204 \div 12 = 17$ ,  $204 \div 17 = 12$