

Math Mammoth End-of-the-Year Test - Grade 4

South African Version

This test is quite long, so I do not recommend that you have your child/student do it in one sitting. Break it into parts and administer them over several days. Use your judgment.

This is to be used as a diagnostic test. So, you may even skip those areas and concepts that you already know for sure the student has mastered.

The test does not cover every single concept that is covered in the *Math Mammoth Grade 4 Complete Curriculum*, but all of the major concepts and ideas are tested here. This test is evaluating the student's ability in the following content areas:

- addition and subtraction
- early algebraic thinking
- the order of operations
- graphs
- large numbers and place value
- rounding and estimating
- multi-digit multiplication
- word problems
- some basic conversions between measuring units
- measuring length
- time calculations
- long division
- the concept of remainder
- factors
- area and perimeter
- measuring and drawing angles
- classifying triangles according to their angles
- adding and subtracting fractions and mixed numbers (like fractional parts)
- equivalent fractions
- comparing fractions
- multiplying fractions by whole numbers
- the concept of a decimal (tenths/hundredths)
- comparing decimals

In order to continue with the *Math Mammoth Grade 5 Complete Curriculum*, I recommend that the student gain a minimum score of 80% on this test, and that the teacher or parent revise with him any content areas in which the student is weak. Students scoring between 70% and 80% may also continue with grade 5, depending on the types of errors (careless errors or not remembering something, versus the lack of understanding). The most important content areas to master are multi-digit multiplication, long division, place value and word problems. Again, use your judgment.

Grading

My suggestion for grading is below. The total is 192 points. A score of 154 points is 80%.

Question	Max. points	Student score
Addition, Subtraction, Patterns and Graphs		
1	2 points	
2a	1 point	
2b	2 points	
3	2 points	
4	6 points	
5	4 points	
6	2 points	
7	4 points	
8	3 points	
<i>subtotal</i>		/ 26
Large Numbers and Place Value		
9	3 points	
10	2 points	
11	3 points	
12	3 points	
13	2 points	
14	3 points	
15	3 points	
16	4 points	
<i>subtotal</i>		/ 23
Multi-Digit Multiplication		
17	6 points	
18	3 points	
19	8 points	
20	3 points	
21a	3 points	
21b	2 points	
21c	2 points	
21d	3 points	
<i>subtotal</i>		/ 30

Question	Max. points	Student score
Time and Measuring		
22	2 points	
23	1 point	
24	3 points	
25	2 points	
26	6 points	
27	6 points	
28	2 points	
29	1 point	
30	2 points	
<i>subtotal</i>		/ 25
Division and Factors		
31	4 points	
32	3 points	
33	4 points	
34a	3 points	
34b	2 points	
35	6 points	
36	4 points	
37	2 points	
38	4 points	
<i>subtotal</i>		/ 32
Geometry		
39	2 points	
40	2 points	
41	3 points	
42	2 points	
43	2 points	
44	1 point	
45	2 points	
46	3 points	
<i>subtotal</i>		/ 17

Question	Max. points	Student score
Fractions and Decimals		
47	1 point	
48	1 point	
49	3 points	
50	2 points	
51	4 points	
52	4 points	
53	2 points	
54	1 point	
55	3 points	
56	4 points	
57	4 points	
58	4 points	
59	4 points	
60	2 points	
<i>subtotal</i>		<i>/ 39</i>
TOTAL		/ 192

End of the Year Test - Grade 4

Addition, Subtraction, Patterns and Graphs

1. Subtract. Check by adding.

$5\,200 - 2\,677 - 543$	Add to check:
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2. a. Round the prices to the nearest rand. Use the rounded prices to estimate the total cost.

Crackers R7,25; cheese R18,90; jam R13,75; butter R19,30.

b. Now, use the exact prices (not rounded prices).

Mrs. Gama bought the items listed above and paid with R60. What was her change?

3. Estimate the cost of buying five notepads for R11,85 each and two pencil cases for R21,25 each.

4. Calculate in the correct order.

<p>a. $3 \times (4 + 6) = \underline{\hspace{2cm}}$</p> <p>$100 - 4 \times 4 = \underline{\hspace{2cm}}$</p>	<p>b. $3 \times 3 + 8 \div 4 = \underline{\hspace{2cm}}$</p> <p>$(7 - 3) \times 3 + 2 = \underline{\hspace{2cm}}$</p>	<p>c. $20 \times 3 + 80 \div 1 = \underline{\hspace{2cm}}$</p> <p>$15 + 2 \times (8 - 6) = \underline{\hspace{2cm}}$</p>
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5. Circle the number sentence that fits the problem. Then solve for x .

<p>a. Alida had R35. Then she earned some money (x). Now she has R92.</p> <p>$R35 + x = R92$ OR $R35 + R92 = x$</p> <p>$x = \underline{\hspace{2cm}}$</p>	<p>b. Muzi gave 24 of the cookies he had baked to a friend and now he has 37 cookies left.</p> <p>$37 - 24 = x$ OR $x - 24 = 37$</p> <p>$x = \underline{\hspace{2cm}}$</p>
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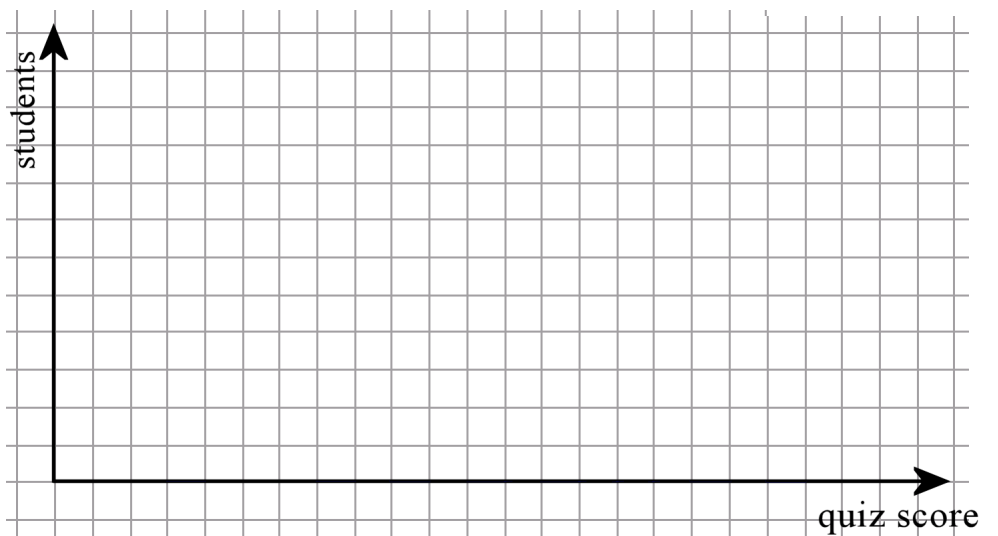
6. a. Continue this pattern for four more numbers:

2 000 1 750 1 500 1 250

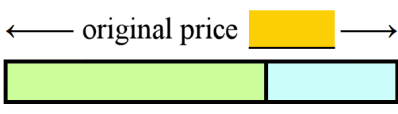
b. Write a list of six numbers that follows this pattern: Start at 200, and add 300 each time.

7. These are the quiz scores for several students. 2 5 8 7 6 6 7 10 10 4 7 7 8 6 8 5 9 9 8 6 6 5 7 9
Make a frequency table and a bar graph.

Quiz score	Frequency
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	



8. Write an addition or a subtraction with an unknown (x or $?$). Solve it. The bar model can help.

<p>A doll used to cost R27,95 but now the price is R21,45. How much is the discount?</p> <p>_____</p> <p>_____</p>	<p>← original price →</p> 
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Large Numbers and Place Value

9. Subtract from whole thousands.

a. $2\ 000 - 1 =$ _____	b. $5\ 000 - 20 =$ _____	c. $6\ 000 - 300 =$ _____
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10. Write the numbers in normal (numerical) form.

- a. 800 thousand 50
- b. 25 thousand 4 hundred 7

11. Find the missing numbers.

a. $30\ 550 = 50 +$ _____ $+ 500$	b. $809\ 100 = 800\ 000 + 100 +$ _____
c. $725\ 608 = 20\ 000 + 700\ 000 + 8 +$ _____ $+ 5\ 000$	

12. Compare, writing $<$, $>$ or $=$ between the numbers.

a. 54 500 55 400	b. 108 882 108 828	c. 71 600 61 700
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13. Write the numbers in order from the smallest to the greatest. 217 200 227 712 27 200 227 200

14. Round the numbers as the dashed line indicates (to the underlined digit).

- a. $4\underline{3}6\ 102 \approx$
- b. $8\underline{9}756 \approx$
- c. $27\underline{5}29 \approx$

15. Round to the nearest ten thousand.

- a. $426\ 889 \approx$
- b. $495\ 304 \approx$
- c. $7\ 345 \approx$

16. Calculate. Line up all of the place value units carefully.

a. $476\,708 + 24\,392 + 563$

b. $405\,112 - 81\,424$

Multi-Digit Multiplication

17. Multiply, and find the missing factors.

a. $70 \times 3 = \underline{\hspace{2cm}}$	b. $6 \times 800 = \underline{\hspace{2cm}}$	c. $40 \times 80 = \underline{\hspace{2cm}}$
d. $\underline{\hspace{2cm}} \times 3 = 360$	e. $50 \times \underline{\hspace{2cm}} = 4\,000$	f. $\underline{\hspace{2cm}} \times 300 = 21\,000$

18. Tshudu earns R20 per hour.

- a. How much will he earn in an 8-hour workday? _____
- b. How much will he earn in a 40-hour workweek? _____
- c. How many days will he need to work in order to earn at least R600? _____

19. Multiply. Estimate the answer on the line.

<p>a. 5×196</p> <p>\approx _____</p> <table border="1"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>																																																							<p>b. 35×38</p> <p>\approx _____</p> <table border="1"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>																																																							<p>c. $7 \times 3\,188$</p> <p>\approx _____</p> <table border="1"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>																																																							<p>d. 89×22</p> <p>\approx _____</p> <table border="1"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>																																																						

20. Write the area of the *whole* rectangle as a SUM of the areas of the *smaller* rectangles. Lastly, add to find the total area.

Area = 8×127

= $\underline{\quad} \times \underline{\quad} + \underline{\quad} \times \underline{\quad} + \underline{\quad} \times \underline{\quad}$

=

21. Solve the problems. **Write a number sentence** or several for each problem.

a. Work out the change, if Seipati buys 26 colouring books for R14 each, and pays with R400.

Estimate: _____

b. How many minutes are there in a day (24 hours)?

c. One side of a square is 375 cm. What is its perimeter?

d. Schoolbags costing R277 are discounted by R58. Aunt Pebetsi buys eight for presents. What is the total cost?

Time and Measuring

22. Measure the lines in centimetres and millimetres.



a. _____ cm _____ mm



b. _____ cm _____ mm

23. How much time passes from 10:54 a.m. to 5:06 p.m.?

24. Lunga kept track of how long it took him to do his homework:

Monday	Tuesday	Wednesday	Thursday	Sunday
1 h 45 min	50 min	1 h 15 min	2 h 15 min	55 min

How much total time did he spend doing homework?

25. A teacher started her workday at 7:00 am, and stopped it at 3:35 pm. But in between, she had a 45-minute lunch break, and another break of 20 minutes. How many hours/minutes did she actually work?

26. Convert between the different measuring units.

a.	b.	c.
2 kg = _____ g	5 L 200 ml = _____ ml	8 cm 2 mm = _____ mm
11 kg 600 g = _____ g	3 m = _____ cm	10 km = _____ m

27. George jogs daily on a track through the woods that is 3 km 800 m long.
What is the total distance he runs in four days?

28. Bongeka drank 350 ml of a 2-litre bottle of water.
How much is left?

29. The long sides of a rectangle measure 5 m 6 cm,
and the short sides are 3 m 4 cm.

What is the perimeter? _____ m _____ cm

Division and Factors

30. Divide. Check each problem by multiplying.

<p>a. $567 \div 9$ Check:</p> <div style="border: 1px solid black; padding: 5px; width: 150px; height: 150px; margin: 10px 0;"> </div>	<p>b. $8\,564 \div 4$ Check:</p> <div style="border: 1px solid black; padding: 5px; width: 150px; height: 150px; margin: 10px 0;"> </div>
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31. Solve.

a. $47 \div 5 = \underline{\quad\quad} \text{ r } \underline{\quad}$	b. $25 \div 3 = \underline{\quad\quad} \text{ r } \underline{\quad}$	c. $57 \div 9 = \underline{\quad\quad} \text{ r } \underline{\quad}$
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32. Solve.

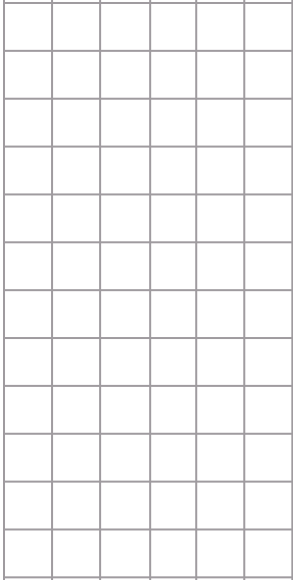
a. Amanda put 48 photographs into an online photo album. On each page she could fit nine photos. How many photos were on the last page?

How many pages were full?

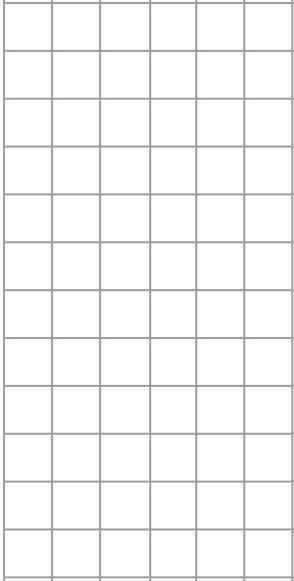
b. If you buy a 15-metre roll of chain-link fence that costs R255, and then you sell 3 metres of it to your neighbour, how much should your neighbour pay?

33. Solve.

a. Mandla had saved R264. He spent $\frac{3}{8}$ of that to buy a book. How much did the book cost?



b. Mary packed 117 muffins into bags of six. How many bags does Mary need for them?



34. Mark with an X if the number is divisible by the given numbers.

number	divisible by 1	divisible by 2	divisible by 3	divisible by 4	divisible by 5	divisible by 6	divisible by 7	divisible by 8	divisible by 9	divisible by 10
80										
75										
47										

35. Fill in the blanks.

a. Is 5 a factor of 60? _____, because ____ × ____ = _____.	b. Is 7 a divisor of 43? _____, because ____ ÷ ____ = _____.
c. Is 96 divisible by 4? _____, because _____.	d. Is 34 a multiple of 7? _____, because _____.

36. List three prime numbers.

37. Find all the factors of the given numbers.

a. 56 factors:	b. 78 factors:
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Geometry

38. Measure this angle.

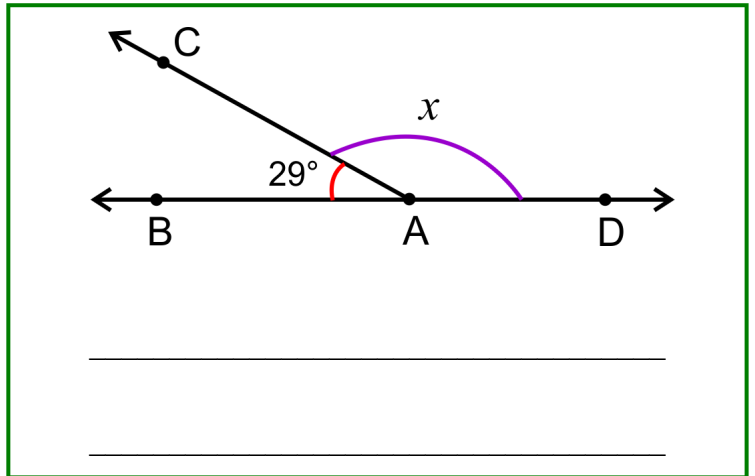


39. Draw here an angle of 65°.

40. Draw here any obtuse triangle, and measure its angles.

41. Write an addition sentence about the angle measures. Use an unknown (x) for one angle measure.

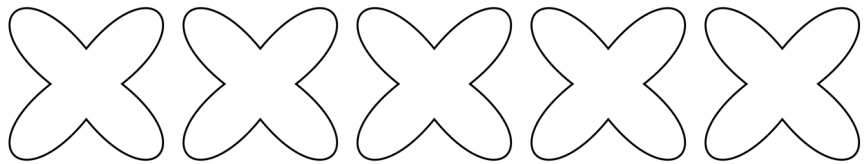
Then solve it.



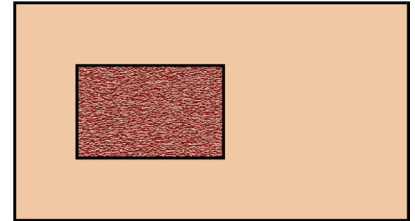
42. Draw any rectangle. Then draw one diagonal line in it (a line from corner to corner). What kind of triangles are formed?

43. Draw two line segments that are perpendicular to each other.

44. Draw as many different symmetry lines as you can into this shape.

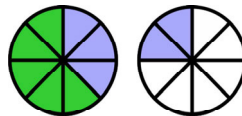


45. This picture shows the floor of a room with a carpet on the floor. The room itself measures 9 metres by 4 metres. The carpet is 2 metres by 3 metres. Find the area of floor not covered by the carpet (not including the carpet).



Fractions and Decimals

46. Write an addition to match the picture:





47. Erika put together $\frac{1}{4}$ of a puzzle, and Mum put together another fourth of it. How much of the puzzle is still left to do?

48. Add and subtract. Give your final answer as a whole number or as a mixed number if possible.

<p>a. $\frac{4}{5} + \frac{3}{5} =$</p>	<p>b. $1\frac{1}{6} - \frac{2}{6} =$</p>	<p>c. $3\frac{6}{8} + 2\frac{2}{8} =$</p>
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49. Split the existing pieces. Fill in the missing parts.

 <p>a. Each piece is split into 2 new ones.</p> $\frac{4}{5} = \frac{\text{yellow bar}}{\text{yellow bar}}$	 <p>b. Each piece is split into ___ new ones.</p> $\frac{\text{yellow bar}}{\text{yellow bar}} = \frac{6}{9}$
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50. Write the equivalent fractions.

a. $\frac{2}{3} = \frac{\square}{15}$	b. $\frac{3}{5} = \frac{9}{\square}$	c. $\frac{1}{6} = \frac{\square}{12}$	d. $\frac{1}{3} = \frac{\square}{9}$
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51. Compare the fractions.

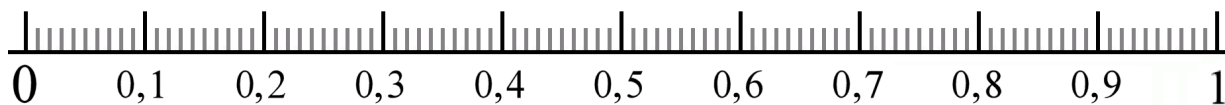
a. $\frac{2}{3} \square \frac{3}{8}$ b. $\frac{6}{5} \square \frac{7}{8}$ c. $\frac{11}{12} \square \frac{11}{10}$ d. $\frac{1}{3} \square \frac{5}{12}$

52. Write these fractions in order, from the smallest to the greatest: $\frac{5}{4}, \frac{7}{10}, \frac{65}{100}$

53. Fill in.

a. $\frac{3}{8} = 3 \times \frac{\square}{\square}$	b. $4 \times \frac{2}{5} =$	c. $7 \times \frac{2}{12} =$
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54. Mark the following decimals on the number line: 0,55 0,08 0,27 0,80



55. Write the fractions and mixed numbers as decimals.

a. $\frac{3}{10}$	b. $3\frac{9}{10}$	c. $\frac{9}{100}$	d. $7\frac{45}{100}$
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56. Write the decimals as fractions or mixed numbers.

a. 0,6	b. 6,7	c. 0,21	d. 5,05
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57. Compare.

a. $0,17 \square 0,2$

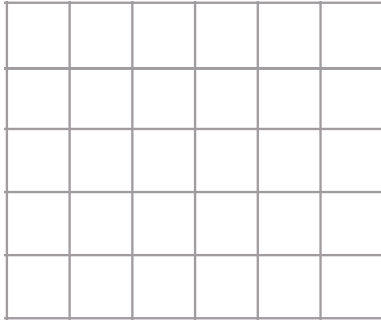
b. $1,6 \square 1,56$

c. $13,09 \square 13,9$

d. $9,80 \square 9,8$

58. Add and subtract.

a. $7,81 + 5,2$



b. $6,1 - 2,36$

