End-of-the-Year Test - Grade 5
International Version

This test is quite long, because it contains lots of questions on all of the major topics covered in *Math Mammoth Grade 5 International Version*. Its main purpose is to be a diagnostic test—to find out what the student knows and does not know. The questions are quite basic and do not involve especially difficult word problems.

Since the test is so long, I do not recommend that you have your child/student do it in one sitting. Break it into 3-5 parts and administer them on consecutive days, or perhaps on morning/evening/morning/evening. Use your judgment.

A calculator is not allowed.

The test is evaluating the student's ability in the following content areas:

- the four operations with whole numbers
- the concept of an equation; solving simple equations
- divisibility and factoring
- place value and rounding with large numbers
- solving word problems, especially those that involve a fractional part of a quantity
- the concept of a decimal and decimal place value
- all four operations with decimals, to the hundredths
- coordinate grid, drawing a line graph, and finding the average
- fraction addition and subtraction
- equivalent fractions and simplifying fractions
- fraction multiplication
- division of fractions in special cases (a unit fraction divided by a whole number, and a whole number divided by a unit fraction)
- classifying triangles and quadrilaterals
- area and perimeter
- volume of rectangular prisms (boxes)

In order to continue with the *Math Mammoth Grade 6 Complete Worktext International Version*, I recommend that the child gain a minimum score of 80% on this test, and that the teacher or parent revise with him any content areas in which he may be weak. The exception to this rule is integers, because they will be revised in detail in 6th grade. Children scoring between 70% and 80% may also continue with grade 6, depending on the types of errors (careless errors or not remembering something, versus a lack of understanding). Again, use your judgment.

Grading

My suggestion for points per item is as follows. The total is 171 points. A score of 137 points is 80%.

Question #	Max. points	Student score
The Four Operations		
1	2 points	
2	6 points	
3	2 points	
4	2 points	
5	2 points	
6	2 points	
7	3 points	
subtotal		/ 19
Large Numbers		
8	2 points	
9	1 point	
10	1 point	
11	4 points	
subtotal		/ 8
Problem Solving		
12	3 points	
13	3 points	
14	3 points	
15	3 points	
16	3 points	
17	3 points	
subtotal		/ 18
Decimals		
18	4 points	
19	6 points	
20	3 points	
21	3 points	
22	3 points	
23	3 points	
24	9 points	
25	6 points	
26	9 points	

Question #	Max. points	Student score
27	3 points	
28	3 points	
subtotal		/52
Graphs		
29	3 points	
30	2 points	
31	4 points	
subtotal		/9
Fractions		
32	3 points	
33	4 points	
34	4 points	
35	2 points	
36	4 points	
37	2 points	
38	5 points	
39	3 points	
40	2 points	
41	4 points	
42	2 points	
43	2 points	
44	4 points	
subtotal		/41
Geometry		
45	4 points	
46	4 points	
47	2 points	
48	3 points	
49	3 points	
50	3 points	
51	1 point	
52	4 points	
subtotal		/24
TOTAL		/171

Math Mammoth End-of-the-Year Test - Grade 5
International Version

The Four Operations

1. Solve (without a calculator).

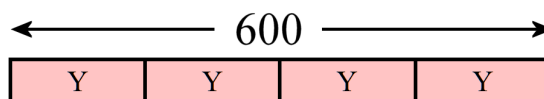   **a.** $1\ 035 \div 23$

   b. 492×832

2. Solve.

   a. $x - 56\ 409 = 240\ 021$

   b. $7\ 200 \div Y = 90$

   c. $N \div 14 = 236$

3. Write an equation to match this model, and solve it.

   $\longleftarrow \qquad 600 \qquad \longrightarrow$

   | Y | Y | Y | Y |

4. Place brackets in the equations to make them true.

   a. $42 \times 10 = 10 - 4 \times 70$ **b.** $143 = 13 \times 5 + 6$

5. Write a <u>single</u> expression (number sentence) for the problem, and solve.

A shop was selling movies that originally cost $19.95 with a $5 discount.
Michelle bought five of them. What was the total cost?

6. Is 991 divisible by 4?

Why or why not?

7. Factor the following numbers to their prime factors.

a. 26 / \	**b.** 40 / \	**c.** 59 / \

Large Numbers

8. Write the numbers.

a. 70 million 16 thousand 90

b. 32 billion 232 thousand

9. Estimate the result of 31 933 × 305.

10. What is the value of the digit 8 in the number **56 782 010 000**?

11. Round these numbers to the nearest thousand, nearest ten thousand, nearest hundred thousand, and nearest million.

number	593 204	19 054 947
to the nearest 1 000		
to the nearest 10 000		
to the nearest 100 000		
to the nearest million		

Problem Solving

12. Jack has a 3-metre-long board. He cuts off 1/6 of it.
    How long is the remaining piece, in metres and centimetres?

13. A website charges a fixed amount for each song download.
    If you can download six songs for $5.40, then how much would
    it cost to download ten songs?

14. A meal in a fancy restaurant costs three times as much as a meal in a cafeteria.
    The lunch in the fancy restaurant costs $36. In a 5-day workweek, Mary eats at the
    fancy restaurant once, and in the cafeteria the rest of the days. How much does she
    spend on lunches in that week?

15. A blue swimsuit costs $42 and a red swimsuit costs 5/6 as much. How much would the two swimsuits cost together?

Mark the $42 in the bar model. Mark what is not known with "?". Solve.
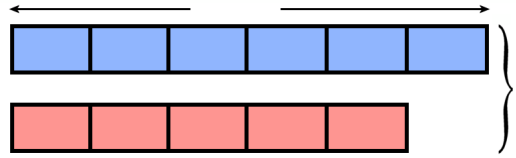
16. A bag has green and purple marbles. Two-fifths of the marbles are green, and the rest are purple.

    a. Draw a bar model for this situation.

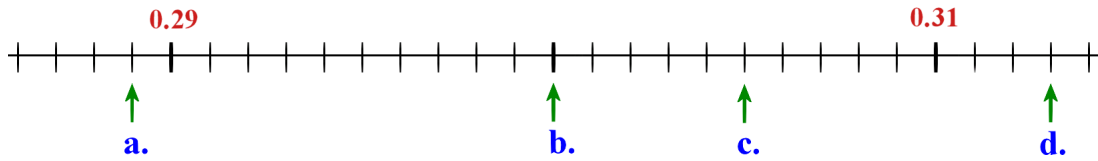   **b.** If there are 134 green marbles, how many are purple?

17. Karen and Ann share the cost of a DVD that costs $29.90 so that Karen pays 3/5 of it and Ann pays 2/5 of it.

    a. *Estimate* how much each person will pay.

    b. Find the exact amount that each person will pay.

Decimals

18. Write the decimals indicated by the arrows.

0.29   0.31

a. _____   b. _____   c. _____   d. _____

19. Complete.

a. $0.9 + 0.05 =$ _____	**b.** $0.28 +$ _____ $= 1$	**c.** $0.82 - 0.2 =$ _____
d. $1.3 - 0.04 =$ _____	**e.** $0.25 + 0.8 =$ _____	**f.** _____ $- 0.2 = 0.17$

20. Write as decimals.

a. $\dfrac{8}{100} =$
　　　　　　b. $\dfrac{81}{1000} =$
　　　　　　c. $5\dfrac{21}{100} =$

21. Write as fractions or mixed numbers.

a. 0.048
　　　　　　b. 1.004
　　　　　　c. 7.22

22. Compare, and write $<$ or $>$.

a. 0.31 ☐ 0.031
　　　b. 0.43 ☐ 0.093
　　　c. 1.6 ☐ 1.29

23. Round the numbers to the nearest one, nearest tenth, and nearest hundredth.

rounded to...	nearest one	nearest tenth	nearest hundredth
5.098			

rounded to...	nearest one	nearest tenth	nearest hundredth
0.306			

24. Solve.

a. $0.4 \times 7 =$	**d.** $10 \times 0.05 =$	**g.** $1.1 \times 0.3 =$
b. $0.4 \times 0.7 =$	**e.** $100 \times 0.05 =$	**h.** $70 \times 0.9 =$
c. $0.4 \times 700 =$	**f.** $1000 \times 0.5 =$	**i.** $20 \times 0.09 =$

25. Divide.

a. $0.36 \div 6 =$	**c.** $3 \div 100 =$	**e.** $16 \div 10 =$
b. $5.6 \div 7 =$	**d.** $0.7 \div 10 =$	**f.** $71 \div 100 =$

26. Convert.

a. 0.2 m = _____ cm	**b.** 0.4 L = _____ ml	**c.** 3 670 mm = _____ m _____ mm
37 cm = _____ m	3.5 kg = _____ g	465 cm = _____ m _____ cm
2.9 km = _____ m	240 g = _____ kg	4 060 g = _____ kg _____ g

27. Two litres of ice cream are divided equally into nine bowls. Calculate how much ice cream is in **TWO** bowls, to the nearest millilitre.

28. Calculate.

   a. $4.2 - 2.78$

   b. $71.40 \div 5$

   c. 2.2×6.4

Graphs

29. Plot the points from the "number rule" on the coordinate grid.

    The rule for *x*-values:
    start at 0, and add 1 each time.

    The rule for *y*-values:
    start at 1, and add 2 each time.

x	0	1				
y	1					
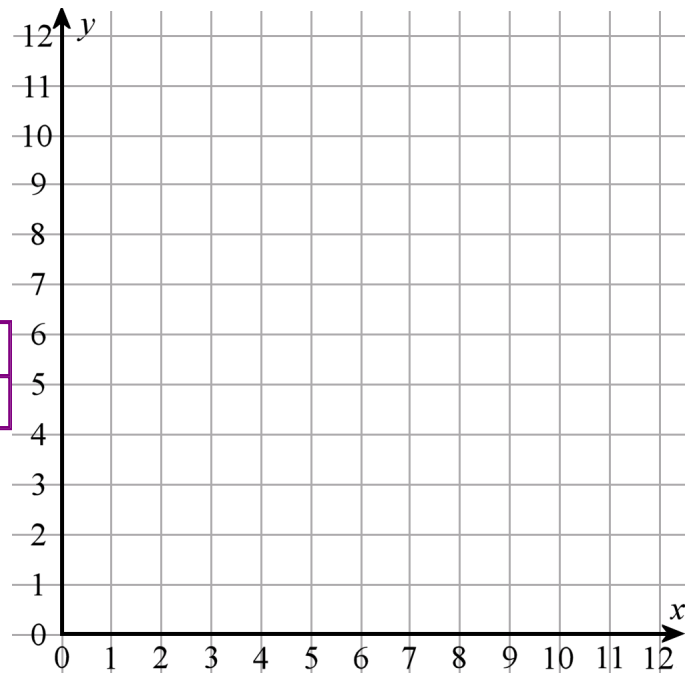
30. Draw in the grid a circle with a centre point at (8, 4), and a radius of 3 units.

31. The table below gives the amount of sales in a supermarket from Monday through Friday.

Day	Sales (thousand dollars)
Mon	125
Tue	114
Wed	118
Thu	130
Fri	158

    a. Make a line graph.

    b. Calculate the average daily sales in this period.
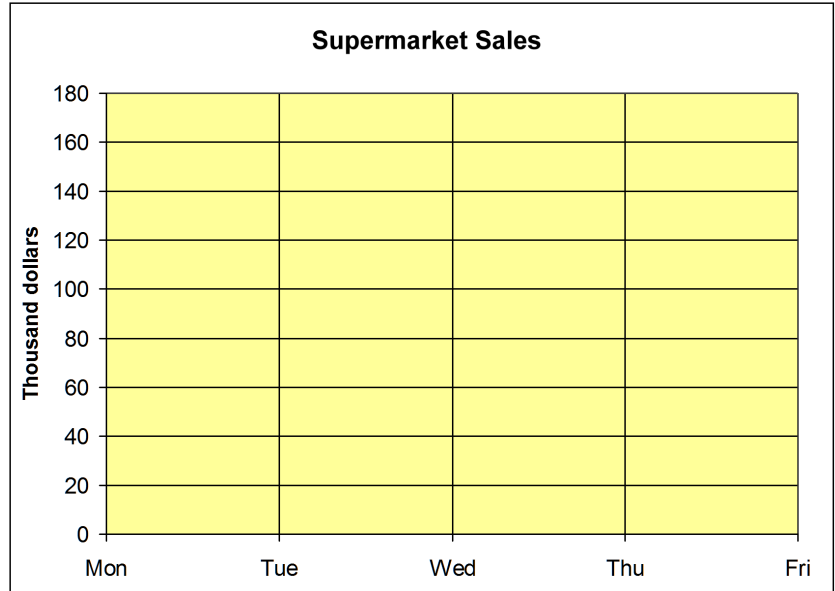
Fractions

32. Add and subtract.

a.	b.	c. $3\frac{7}{10}$
$3\frac{7}{9}$	$5\frac{1}{6}$	$+\ 2\frac{8}{10}$
$+\ 2\frac{5}{9}$	$-\ 2\frac{5}{6}$	$+\ 7\frac{3}{10}$

33. Mark the fractions on the number line. $\dfrac{3}{4}$, $\dfrac{1}{3}$, $\dfrac{4}{6}$, $\dfrac{5}{12}$
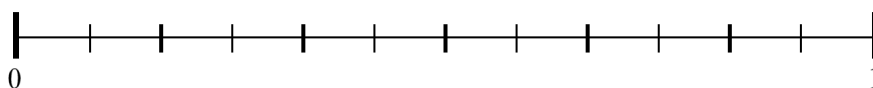
34. If you can find an equivalent fraction, write it. If you cannot, cross the whole problem out.

a. $\dfrac{5}{6} = \dfrac{}{20}$	b. $\dfrac{2}{7} = \dfrac{}{28}$	c. $\dfrac{3}{8} = \dfrac{15}{}$	d. $\dfrac{2}{9} = \dfrac{6}{}$

35. Find the errors in Martha's calculation and correct them.

"I need these to have the same denominator."

$$\frac{2}{5} + \frac{2}{3}$$

$$\downarrow \qquad \downarrow$$

$$\frac{2}{15} + \frac{2}{15} = \frac{4}{15}$$

36. Add and subtract the fractions and mixed numbers.

a. $\dfrac{1}{3} + \dfrac{5}{6}$	**b.** $\dfrac{4}{5} - \dfrac{1}{3}$
c. $6\dfrac{1}{8} - \dfrac{1}{2}$	**d.** $6\dfrac{7}{9} + 3\dfrac{1}{2}$

37. You need 2 3/4 cups of flour for one recipe of rolls.
    How much flour you would need to make three times the recipe for rolls?

38. Compare the fractions, and write $<$, $>$, or $=$ in the box.

a. $\dfrac{6}{9} \square \dfrac{6}{13}$ **b.** $\dfrac{6}{13} \square \dfrac{1}{2}$ **c.** $\dfrac{5}{10} \square \dfrac{48}{100}$ **d.** $\dfrac{1}{4} \square \dfrac{25}{100}$ **e.** $\dfrac{5}{7} \square \dfrac{7}{10}$
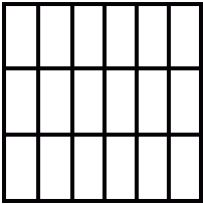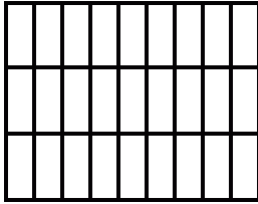
39. Simplify the following fractions if possible. Give your answer as a mixed number when you can.

a. $\dfrac{21}{15} =$	**b.** $\dfrac{29}{36} =$	**c.** $\dfrac{42}{48} =$

40. Is the following multiplication correct?
    If not, correct it. $\dfrac{2}{3} \times$ $=$
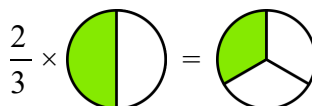
41. Multiply the fractions, and shade a picture to illustrate the multiplication.

a. $\dfrac{1}{3} \times \dfrac{5}{6}$

b. $\dfrac{2}{9} \times \dfrac{2}{3}$

42. How many 1/4-metre pieces can you cut from a string that is 15 metres long?
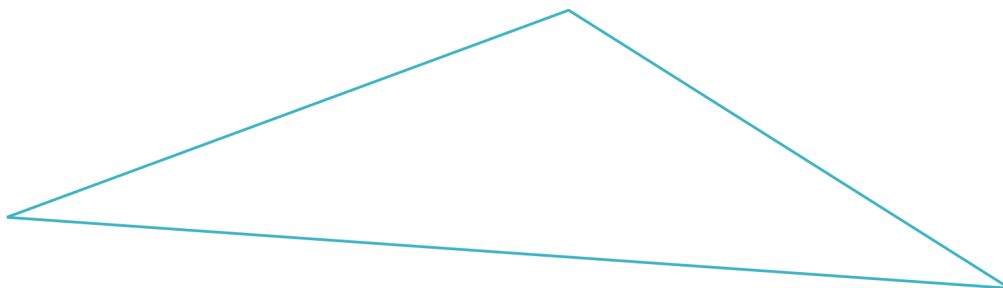
43. Three people share half of a pizza evenly. What fractional part of the original pizza does each one get?

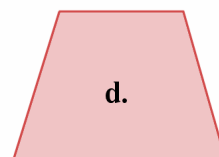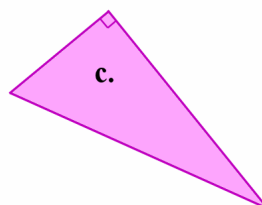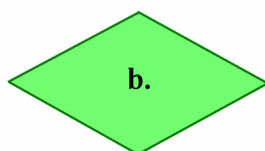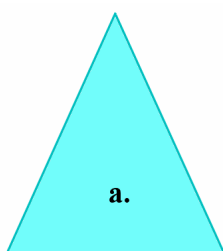44. Solve. Give your answer as a mixed number and in a simplified form.

a. $\dfrac{7}{6} \times 9$

b. $\dfrac{1}{7} \div 3$

c. $\dfrac{4}{5} \times 3\dfrac{2}{3}$

d. $2 \div \dfrac{1}{9}$

Geometry

45. Measure the sides of the triangle in centimetres. Find its perimeter.

46. Below you see two triangles and two quadrilaterals. Classify the triangles according to their sides and angles. Name the quadrilaterals.

b. **c.** **d.**

a.

a. _____

b. _____

c. _____

d. _____

47. **a.** A square has a perimeter of 12 m. What is its area?

    b. A square has an area of 25 cm^2. What is its perimeter?

48. Is a square a trapezium? Why or why not?

49. Can an obtuse triangle be isosceles?
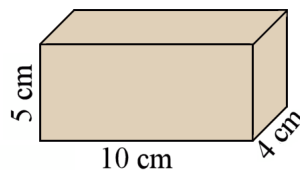   If not, explain why not.
    If yes, sketch an example.

50. **a.** Draw a right triangle with 5 cm and 7 cm perpendicular sides.

    b. Find its perimeter.

    c. Measure its angles. They measure _____°, _____°, and _____°.

51. This is a rectangular prism.
    Find its volume.

5 cm

10 cm

4 cm

52. Matthew has a rainwater collection tank in his yard that is rectangular,
    like a box. It is 1.2 m long, 60 cm wide, and 1 m tall.

    a. Find the volume of the tank in cubic <u>metres</u>.

    b. One morning, after a rainy night, the tank is about 1/3 full.
    About how many litres of water are in the tank?
    One cubic metre equals 1 000 litres.