End-of-Year Test - Grade 5

This test is quite long, because it contains questions on all of the major topics covered in *Math Mammoth Grade 5 Complete Curriculum*. 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 don't involve especially difficult word problems.

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

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
- volume of rectangular prisms (boxes)

In order to continue with the *Math Mammoth Grade 6 Complete Worktext*, I recommend that the child gain a minimum score of 80% on this test, and that the teacher or parent review with him any content areas in which he may be weak. 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 judgement.

Instructions to the student:
Do not use a calculator. Answer each question in the space provided.

Instructions to the teacher: The total is 182 points. A score of 146 points is 80%.

Question #	Max. points	Student score
The Four Operations		
1	2 points	
2	6 points	
3	2 points	
4	4 points	
5	2 points	
6	2 points	
7	3 points	
	subtotal	/ 21
Large Numbers		
8	2 points	
9	1 point	
10	4 points	
11	1 point	
12	4 points	
	subtotal	/ 12
Problem Solving		
13a	2 points	
13b	2 points	
14	3 points	
15	3 points	
16	3 points	
17	3 points	
	subtotal	/ 16
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	
27	3 points	
28	3 points	
	subtotal	/52

Question #	Max. points	Student score
Graphs		
29	3 points	
30	4 points	
	subtotal	/7
Fractions		
31	3 points	
32	4 points	
33	4 points	
34	2 points	
35	4 points	
36	2 points	
37	5 points	
38	3 points	
39	2 points	
40	4 points	
41	2 points	
42	2 points	
43	4 points	
44	4 points	
	subtotal	/45
Geometry		
45	4 points	
46	3 points	
47	6 points	
48	2 points	
49	2 points	
50	3 points	
51a	1 point	
51b	2 points	
52	2 points	
53	4 points	
	subtotal	/29
	TOTAL	/182

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

The Four Operations

1. Solve (without a calculator).

a. 1035 ÷ 23

b. 492 × 832

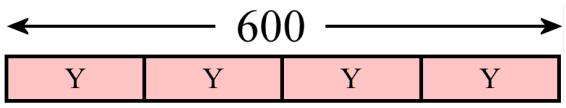
2. Solve.

a. x – 56 409 = 240 021

b. 7200 ÷ Y = 90

c. N ÷ 14 = 236

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



4. Solve in the right order.

a. (25 + 8) ÷ 3 × 2 = _____	**b.** 2 × (30 − 12 + 2) + 8 = _____
c. 25 + 8 × 3 ÷ 2 = _____	**d.** 10 ÷ 2 × (7 + 8) = _____

5. Place parentheses into the equations to make them true.

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

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

10. Calculate the products.

a. 224×10^7	**b.** $78\,009 \times 10^5$
c. $30\,000 \times 5000$	**d.** $400 \times 20 \times 60$

11. Estimate the result of 31 933 × 305.

12. 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 1000		
to the nearest 10 000		
to the nearest 100 000		
to the nearest million		

Problem Solving

13. Write a single expression (number sentence) for each problem, and solve.

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

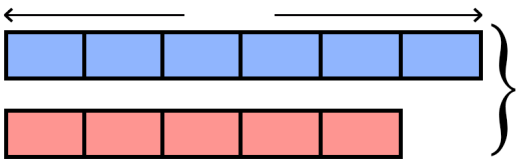
Expression: _____

b. A website charges a fixed amount for each song download. If you can download six songs for $4.68, then how much would it cost to download ten songs?

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

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?

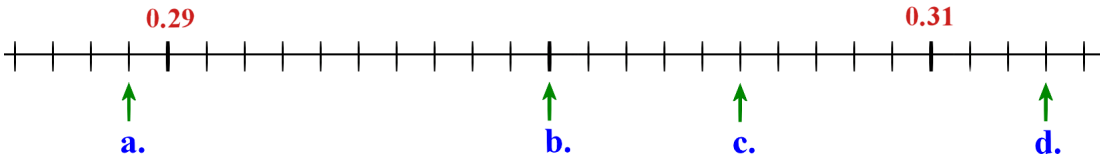
17. Karen and Ann share the cost of a DVD that costs $29.90 so that Karen pays 3/5 of it and Ann pays 2/5 of it.

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

b. Find the exact amount of how much each person will pay.

Decimals

18. Write the decimals indicated by the arrows.



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. $\frac{8}{100}$ = **b.** $\frac{81}{1000}$ = **c.** $5\frac{21}{100}$ =

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 × 7 =	**d.** 10 × 0.05 =	**g.** 1.1 × 0.3 =
b. 0.4 × 0.7 =	**e.** 1000 × 0.05 =	**h.** 70 × 0.9 =
c. 0.4 × 700 =	**f.** $10^5 \times 0.5$ =	**i.** 20 × 0.09 =

25. Divide.

a. $0.36 \div 6 =$	**c.** $3 \div 100 =$	**e.** $16 \div 10^2 =$
b. $5.6 \div 7 =$	**d.** $0.7 \div 10 =$	**f.** $712 \div 10^3 =$

26. Convert.

a. 0.2 m = _____ cm	**b.** 0.4 L = _____ ml	**c.** 3670 mm = _____ m _____ mm
37 cm = _____ m	3.5 kg = _____ g	465 cm = _____ m _____ cm
2.9 km = _____ m	240 g = _____ kg	4060 g = _____ kg _____ g

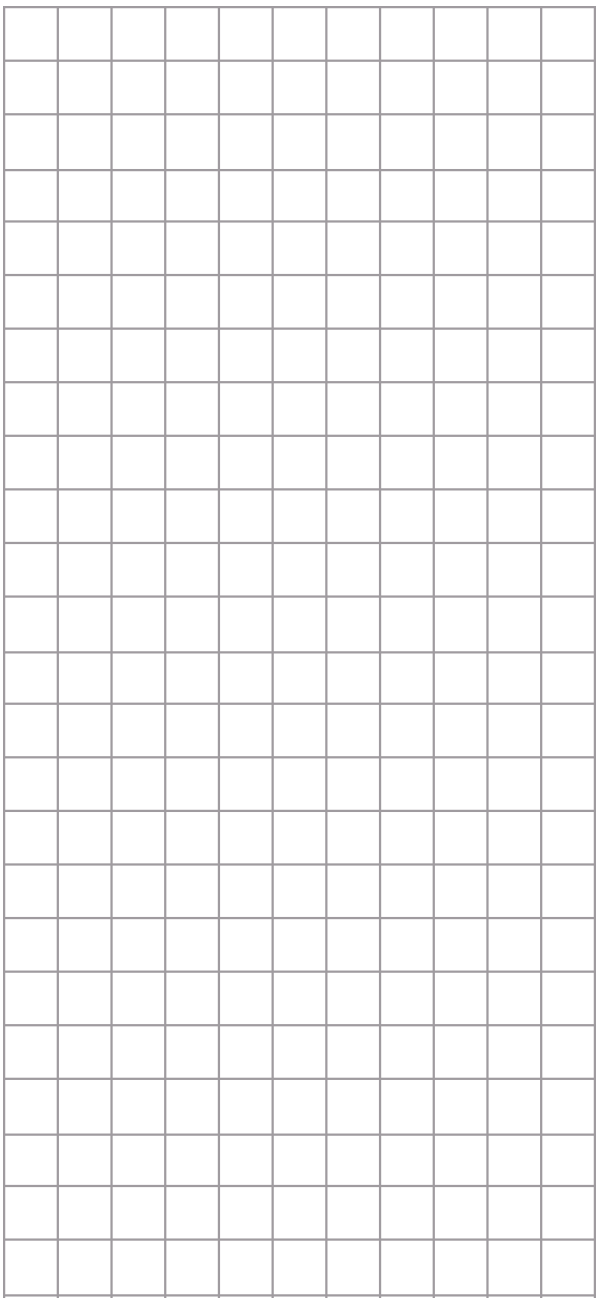
27. Two litres of ice cream are divided equally into nine bowls. Calculate, to the nearest millilitre, how much ice cream is in *two* bowls.

28. Calculate.

a. $4.2 - 2.78$

b. $71.40 \div 5$

c. 2.2×6.4



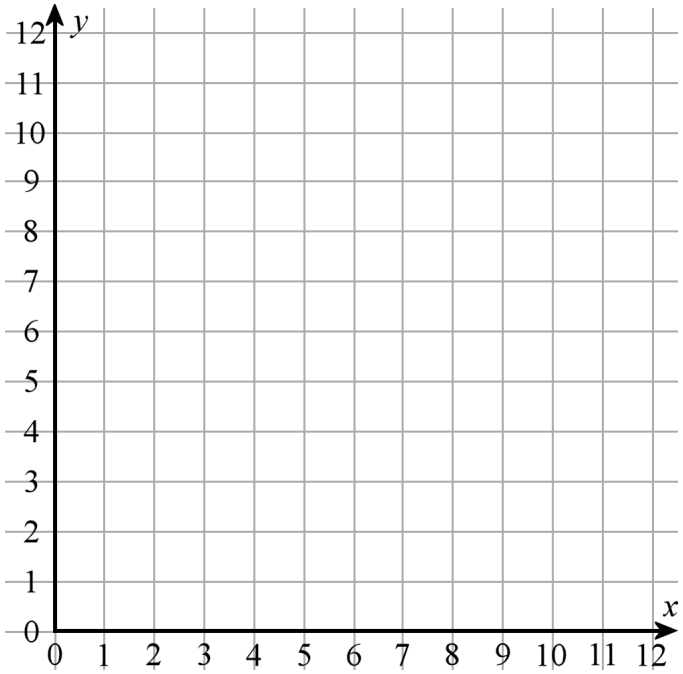
Graphs

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					

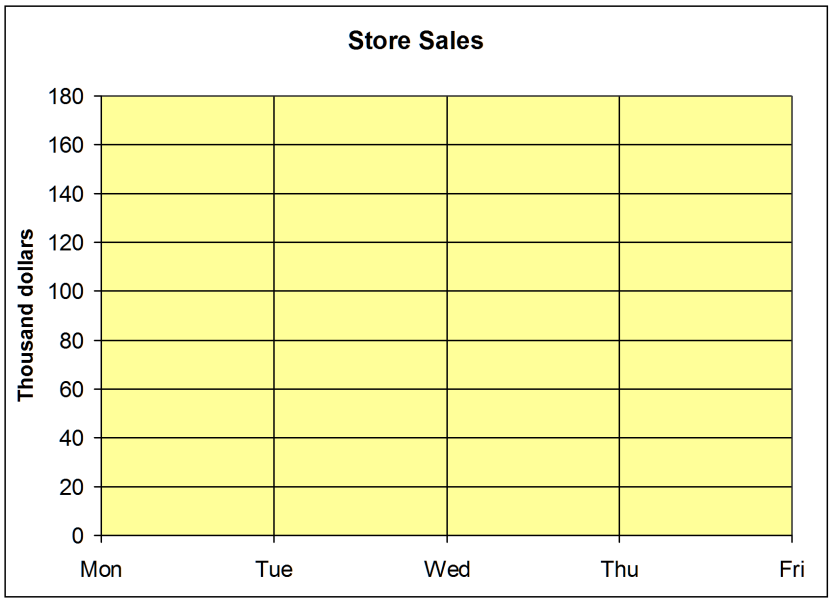


30. The table below gives the amount of sales in a grocery store from Monday through Friday.

Day	**Sales** (thousands of dollars)
Mon	125
Tue	114
Wed	118
Thu	130
Fri	158

a. Make a line graph.

b. Calculate the average daily sales for this period.

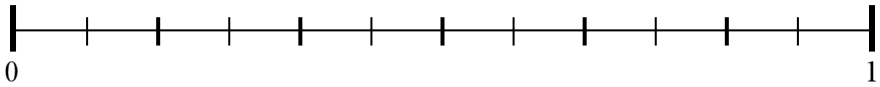


Fractions

31. Add and subtract.

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

32. Mark the fractions on the number line. $\frac{3}{4}$, $\frac{1}{3}$, $\frac{4}{6}$, $\frac{5}{12}$



33. If you can find an equivalent fraction, write it. If you cannot, cross the whole problem out.

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

34. Find the errors in Mia's calculation and correct them.

"I need these to have the same denominator."

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

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

35. Add and subtract the fractions and mixed numbers.

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

36. You need 2 3/4 cups of flour for one batch of rolls.
Find how much flour you would need for three batches of rolls.

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

a. $\frac{6}{9} \square \frac{6}{13}$ **b.** $\frac{6}{13} \square \frac{1}{2}$ **c.** $\frac{5}{10} \square \frac{48}{100}$ **d.** $\frac{1}{4} \square \frac{25}{100}$ **e.** $\frac{5}{7} \square \frac{7}{10}$

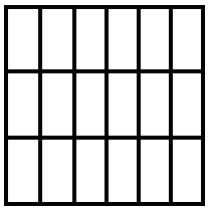
38. Simplify the following fractions if possible. Give your answer as a mixed number when you can.

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

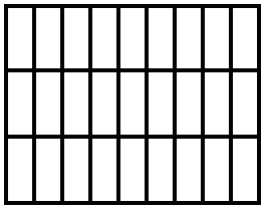
39. Is the following multiplication correct?
If not, correct it.

$\frac{2}{3} \times$  $=$ 

40. Multiply the fractions, and shade a picture to illustrate the multiplication.



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



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

41. How many 1/4 m pieces can you cut from a string that is 15 m long?

42. Three people share half a pizza evenly. What fractional part of the original pizza does each one get?

43. Is the result of multiplication more, less, or equal to the original number? You do not have to calculate anything. Compare, writing < , > , or = in the box.

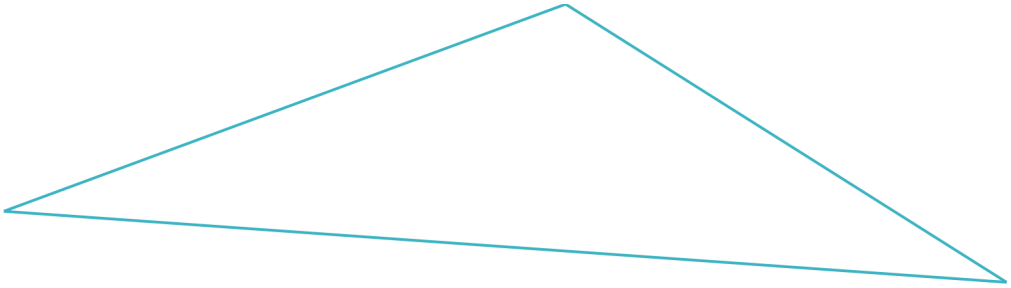
a. $\frac{19}{17} \times 93 \square 93$	**b.** $\frac{8}{9} \times \frac{5}{6} \square \frac{5}{6}$	**c.** $\frac{14}{15} \times 516 \square 516$	**d.** $\frac{52}{52} \times 7.09 \square 7.09$

44. Solve. Give your answer as a mixed number and simplified to lowest terms.

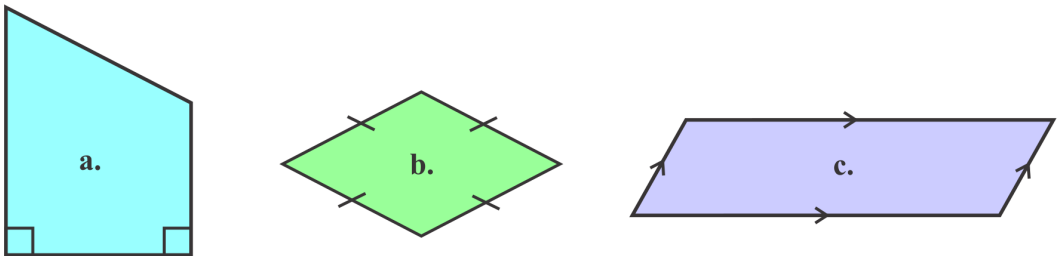
a. $\frac{7}{6} \times 9$	**b.** $\frac{1}{7} \div 3$
c. $\frac{4}{5} \times 3\frac{2}{3}$	**d.** $2 \div \frac{1}{9}$

Geometry

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



46. Name the quadrilaterals. Use the most descriptive names.

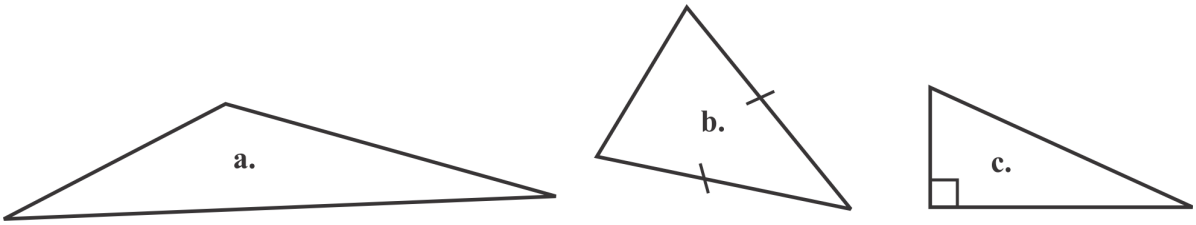


a. _____

b. _____

c. _____

47. Classify each triangle according to its sides and its angles.



a. _____ and _____

b. _____ and _____

c. _____ and _____

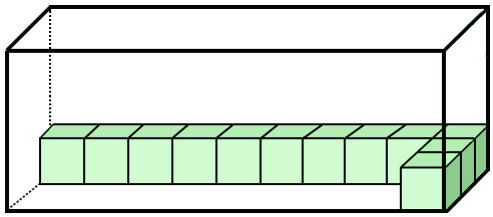
48. Give the definition of a trapezoid.

49. Write an "x" if the shape also fulfils the definition of a rectangle or of a parallelogram.

	a rectangle	a parallelogram
a. Every rhombus is also...		
b. Every square is also...		

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

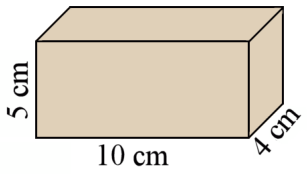
51. A rectangular prism is being filled with little cubes (cubic units). The cubes can fit in the prism four levels high.



a. What is the volume of the prism, in cubic units?

b. If the edge of each little cube measures 2 cm, what is the volume of the prism, in cubic centimetres?

52. This box is a rectangular prism.
What is the volume of *four* such boxes?



53. 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 metres.

b. After a rainy night, the tank was about 1/3 full.
About how many litres of water were in the tank?
1 cubic metre equals 1000 litres.