

Math Mammoth Grade 5 End of the Year Test Notes

This test is quite long, because it contains lots of questions on all 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 doesn't 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 to 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 child's ability in the following content areas:

- the concept of an equation; solving simple equations
- the concept of a ratio
- solving word problems that involve ratio or a fractional part of a quantity
- long division with 2-digit divisor
- writing and rounding large numbers
- place value with decimals and rounding decimals
- all four operations with decimals (mentally)
- long division and multiplication with decimals
- drawing line graphs and finding average
- all four operations with fractions
- classifying and drawing triangles and quadrilaterals
- finding the area of triangles, parallelograms, rectangles, and shapes composed of those
- finding the volume and surface area of rectangular prisms (boxes)
- the concept of an integer and adding integers
- the concept of percent

A few topics *not* covered in the test but that are covered in the Math Mammoth 5th grade worktext are: histograms, mode, using calculator, plotting simple functions, area units, similar figures, subtracting integers, coordinate grid in all four quadrants, balance as illustrating equations, and word problems that involve percent.

In order to continue with Math Mammoth Grade 6 Complete Worktext, I recommend that the child gain a score of 80% on this test, and that the teacher or parent review with him any content areas that are found weak. The exception to this rule is integers, because they will be reviewed 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, vs. lack of understanding). Again, use your judgment.

Grading

My suggestion for points per item is as follows. The total is 193 points. A score of 155 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	2 points	
<i>subtotal</i>		/ 18
Large Numbers		
8	2 points	
9	2 points	
10	4 points	
<i>subtotal</i>		/ 8
Decimals		
11	5 points	
12	3 points	
13	3 points	
14	3 points	
15	3 points	
16	3 points	
17	9 points	
18	6 points	
19	3 points	
20	4 points	
21	4 points	
22	2 points	
<i>subtotal</i>		/48
Graphs		
23	4 points	
<i>subtotal</i>		/4
Fractions		
24	3 points	
25	4 points	
26	4 points	
27	3 points	

Question #	Max. points	Student score
28	4 points	
29	2 points	
30	5 points	
31	3 points	
32	2 points	
33	4 points	
34	2 points	
35	4 points	
36	2 points	
<i>subtotal</i>		/42
Geometry		
37	4 points	
38	4 points	
39	2 points	
40a	2 points	
40b	1 point	
40c	2 points	
40d	2 points	
41	2 points	
42	4 points	
43	6 points	
44	4 points	
45	3 points	
<i>subtotal</i>		/36
Integers		
46	4 points	
47	3 points	
48	2 points	
49	6 points	
<i>subtotal</i>		/15
Percent		
50	6 points	
51	8 points	
52	8 points	
<i>subtotal</i>		/22
TOTAL		/193

Math Mammoth End of the Year Test - Grade 5

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. A \$96 gadget is discounted $\frac{2}{5}$ off of the normal price.
Find the discounted price.

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

a. $42 \times 10 = 10 - 4 \times 70$

b. $143 = 13 \times 5 + 6$

5. **a.** Draw a picture or a diagram to represent this situation:
The ratio of balls to squares is 5:2.

b. What is the ratio of squares to all shapes?

6. A bag has green and purple marbles in a ratio of 2:5.
If there are 133 marbles in all, how many are green?

7. A website charges a fixed amount for each song download.
If you can download 6 songs for \$4.68, then how much would
it cost to download 10 songs?

Large Numbers

8. Write the numbers.

a. 70 million 16 thousand 90

b. 32 billion 232 thousand

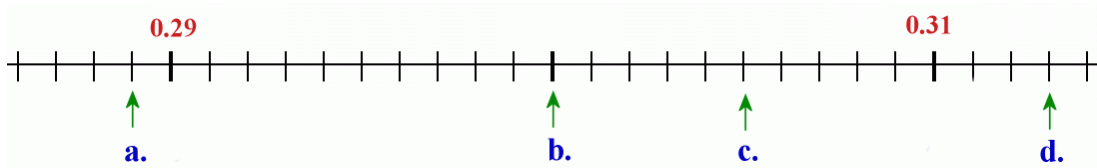
9. Estimate the result of $31,933 \times 305$.

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

<i>number</i>	593,204	19,054,947
to the nearest 1,000		
to the nearest 10,000		
to the nearest 100,000		
to the nearest million		

Decimals

11. Write the decimals indicated by the arrows.



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

12. Complete.

a. $0.9 + 0.005 =$ _____ b. $0.28 +$ _____ $= 1$ c. $0.829 - 0.2 =$ _____

13. Write as decimals.

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

14. Write as fractions or mixed numbers.

a. 0.048 b. 1.004 c. 7.22

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

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

16. 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			

17. Solve.

a. $0.4 \times 7 =$	d. $10 \times 0.005 =$	g. $0.11 \times 0.3 =$
b. $0.4 \times 0.7 =$	e. $100 \times 0.005 =$	h. $0.7 \times 0.9 =$
c. $0.4 \times 0.07 =$	f. $1000 \times 0.005 =$	i. $20 \times 0.09 =$

18. Divide.

a. $0.36 \div 6 =$	c. $3 \div 100 =$	e. $0.16 \div 10 =$
b. $0.056 \div 7 =$	d. $0.7 \div 10 =$	f. $71 \div 1000 =$

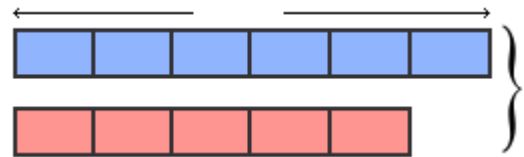
19. Two liters of ice cream is divided equally into nine bowls.
Calculate how much ice cream is in **TWO** bowls, to the nearest milliliter.

20. Karen and Ann share the cost of a DVD that costs \$29.90
so that Karen pays $\frac{3}{5}$ of it and Ann pays $\frac{2}{5}$ of it.

- a.** Estimate how much each person will pay.
- b.** Find the exact amount of how much each person will pay.

21. A blue swimsuit costs \$42 and a red swimsuit
costs $\frac{5}{6}$ as much. How much would the two
swimsuits cost together?

Mark the \$42 in the bar model. Mark what is not
known with "??". Solve.



22. Calculate.

a. $7.140 \div 5$

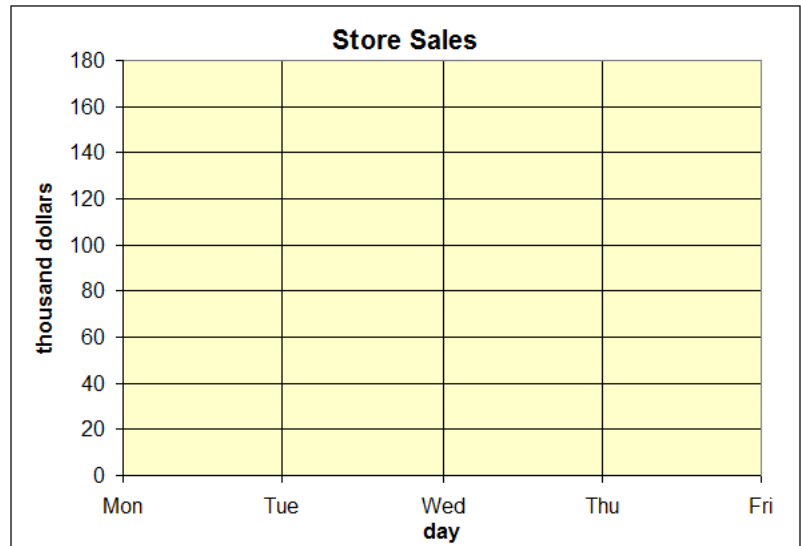
b. 0.21×6.4

Graphs

23. 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

- Make a line graph.
- Calculate the average daily sales in this period.

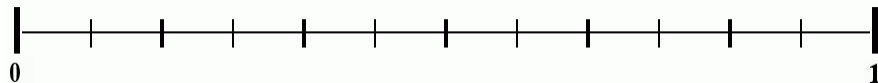


Fractions

24. Add and subtract.

<p>a. $3\frac{7}{9}$ + $2\frac{5}{9}$ <hr/></p>	<p>b. $5\frac{1}{6}$ - $2\frac{5}{6}$ <hr/></p>	<p>c. $3\frac{7}{10}$ + $2\frac{8}{10}$ + $7\frac{3}{10}$ <hr/></p>
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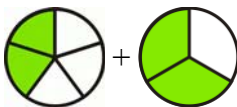
25. Mark the fractions on the number line. $\frac{3}{4}$, $\frac{1}{3}$, $\frac{4}{6}$, $\frac{5}{12}$



26. If you can find an equivalent fraction, write it. If you can not, 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. $\frac{2}{9} = \frac{6}{\quad}$
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27. Find the errors in Mia's calculation and correct them.



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

↓ ↓



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

"I need these to have the same denominator."

28. 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. $6\frac{7}{9} + 3\frac{1}{2}$

29. You need $2\frac{3}{4}$ cups of flour for one batch of rolls.

Find how much flour you would need for three batches of rolls.

30. 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. $\frac{5}{10} \square \frac{48}{100}$

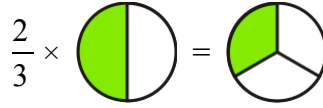
d. $\frac{1}{4} \square \frac{25}{100}$

e. $\frac{5}{7} \square \frac{7}{10}$

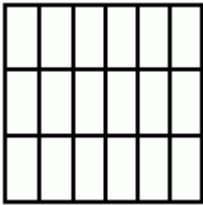
31. Simplify the following fractions if possible. Give your answer as a mixed number if possible.

a. $\frac{21}{15} =$	b. $\frac{29}{36} =$	c. $\frac{42}{48} =$
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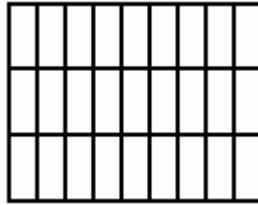
32. Is the following multiplication correct?
If not, correct it.



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



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



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

34. How many 5/8-inch pieces can you cut from a string that is 15 inches long?

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

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

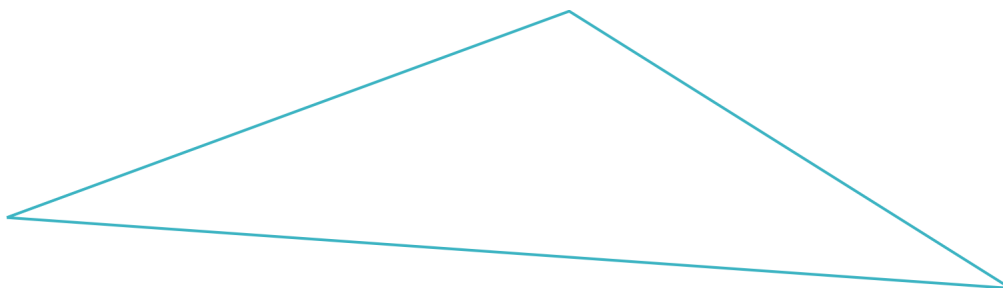
36. Jessie has a big bag of marbles. $\frac{2}{7}$ of them are red, $\frac{2}{7}$ of them are blue, and the rest are transparent.

a. What is the ratio of blue marbles to transparent marbles?

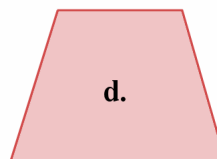
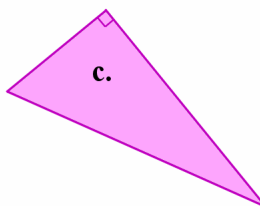
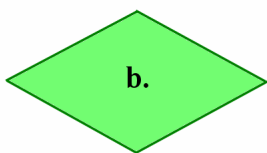
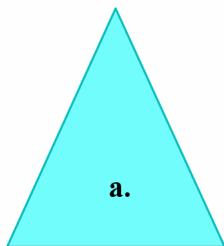
b. If there are 64 red marbles, how many marbles are in the bag?

Geometry

37. Measure the sides of the triangle in inches. Find its perimeter.



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



a. _____

b. _____

c. _____

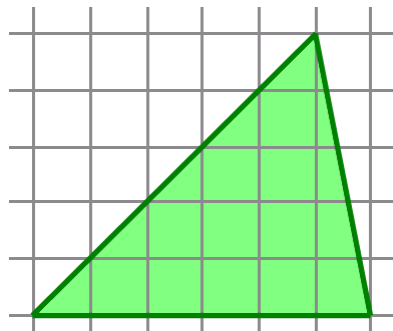
d. _____

39. a. A square has a perimeter of 12 cm. What is its area?

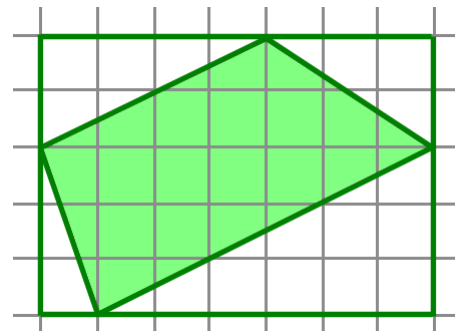
b. A square has an area of 25 cm^2 . What is its perimeter?

40. **a.** Draw a right triangle with 5 cm and 7 cm perpendicular sides.
- b.** Find its perimeter.
- c.** Find its area.
- d.** Measure its angles. They measure _____[°], _____[°], and _____[°].

41. Find the areas of the shaded shapes in square units.



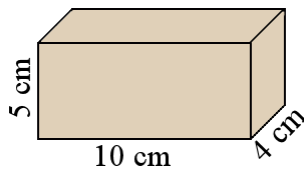
a. _____ square units



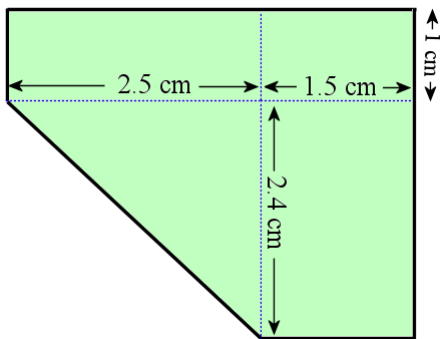
b. _____ square units

42. This is a rectangular prism.

- a.** Find its surface area.
- b.** Find its volume.



43. Find the area of the shape. The lines that look like meeting at right angles, do meet at right angles.



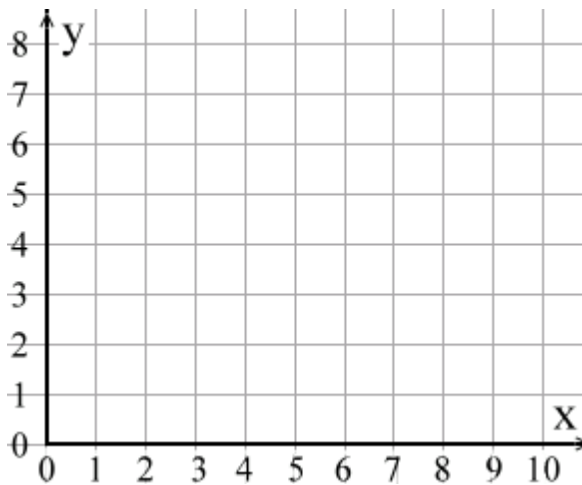
44. Matthew has a rainwater collection tank on his yard that is rectangular, like a box. It is 1.2 m long, 60 cm wide, and 1 m tall.

- a. Find the volume of the tank in cubic meters.

- b. One morning, after a rainy night, the tank is about $\frac{1}{3}$ full. About how many liters of water are in the tank? (1 cubic meter equals 1,000 liters.)

45. a. Draw a shape with vertices at (1, 1), (7, 1), (3, 4), and (9, 4).
- b. What is the shape called?

 - c. Find the area of the shape in square units.

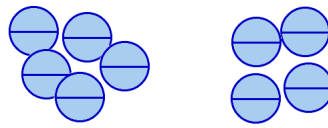
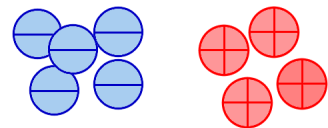
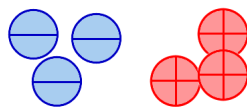


Integers

46. Compare. Write $<$ or $>$ between the numbers.

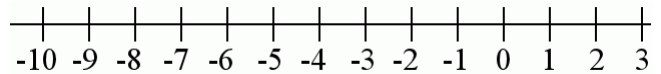
a. $-3 \square -6$	b. $2 \square -3$	c. $-9 \square -5$	d. $-4 \square 0$
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47. Write an addition sentence to match the picture.

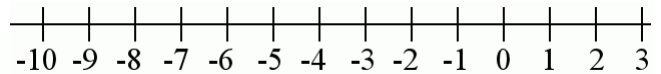
<p>a.</p> 	<p>b.</p> 	<p>c.</p> 
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48. Draw a number line jump for each addition problem, and solve it.

a. $-9 + 6 = \underline{\hspace{2cm}}$



b. $-3 + 5 = \underline{\hspace{2cm}}$



49. Add.

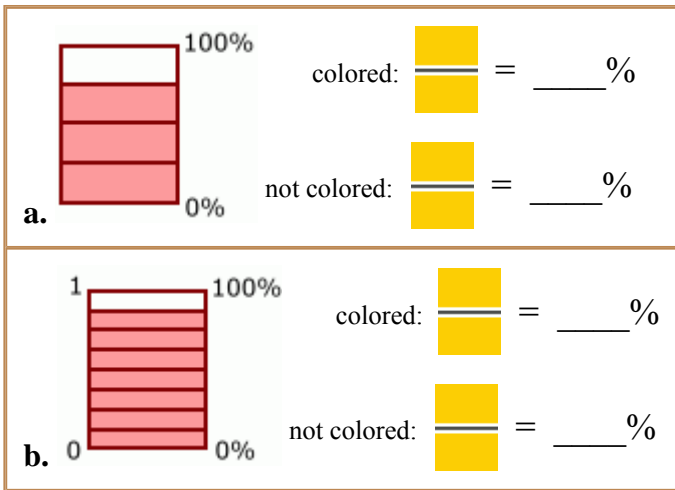
a. $4 + (-7) =$	c. $2 + (-9) =$	e. $2 + (-8) + (-3) =$
b. $(-6) + 6 =$	d. $(-7) + (-8) =$	f. $(-4) + 2 + 9 =$

Percent

50. Write as percents, fractions, and decimals.

<p>a. $2\% = \frac{\text{yellow square}}{\text{yellow square}} = \underline{\hspace{2cm}}$</p>	<p>b. $\underline{\hspace{1cm}}\% = \frac{70}{100} = \underline{\hspace{2cm}}$</p>	<p>c. $\underline{\hspace{1cm}}\% = \frac{\text{yellow square}}{\text{yellow square}} = 0.67$</p>
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51. Write the fractions as percents.



52. Fill in the table. Use mental math.

percentage / number	1,100	500	70	31
1% of the number				
7% of the number				
10% of the number				
40% of the number				