Math Mammoth Grade 3 South African Version
End-of-Year Test Answer Key

Instructions to the teacher: My suggestion for grading is below. The total is 219 points. A score of 175 points is 80%.

Grading on question 1 (the multiplication tables grid): There are 144 empty squares to fill in the table, and the completed table is worth 14 points. Count how many of the answers the student gets right, divide that by 10, and round to the nearest whole point. For example: a student gets 24 right. 24/10 = 2.4, which rounded becomes 2 points. Or, a student gets 85 right. 85/10 = 8.5, which rounds to 9 points.

Grading on question 2: Each question is worth 1/2 point.

Question	Max. points	Student score
Multiplication Tables and Basic Division Facts		
1	14 points	
2	8 points	
3	8 points	
	subtotal	/ 30
Addition and Subtraction		
4	6 points	
5	6 points	
6	3 points	
7	2 points	
8	3 points	
	subtotal	/ 20
Regrouping and Rounding		
9	3 points	
10	2 points	
11	4 points	
12	3 points	
13	4 points	
14	3 points	
	subtotal	/ 19
Multiplication and Related Concepts		
15	1 point	
16	1 point	
17	3 points	
18	3 points	
19	3 points	
20a	2 points	
20b	2 points	
20c	2 points	
20d	2 points	
	subtotal	/ 19

Question	Max. points	Student score
Time		
21	6 points	
22	2 points	
23	4 points	
24	4 points	
	subtotal	/ 16
Graphs		
25	4 points	
26	3 points	
	subtotal	/ 7
Money		
27	4 points	
28	3 points	
29	3 points	
	subtotal	/ 10
Four-Digit Numbers		
30	2 points	
31	2 points	
32	5 points	
33	4 points	
34	4 points	
	subtotal	/ 17
Division and Related Concepts		
35	2 points	
36	9 points	
37	6 points	
38	6 points	
	subtotal	/ 23

Question	Max. points	Student score
Measuring		
39	2 point	
40	1 point	
41	1 point	
42	1 point	
43	6 points	
	subtotal	/ 11
Geometry		
44	6 points	
45	3 points	
46	2 points	
47	3 points	
48	2 points	
49	2 points	
50	2 points	
	subtotal	/ 20

Question	Max. points	Student score
Fractions		
51	5 points	
52	5 points	
53	4 points	
54	3 points	
55	2 points	
56	5 points	
57	3 points	
	subtotal	/ 27
	TOTAL	**/ 219**

Answers

1.

×	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

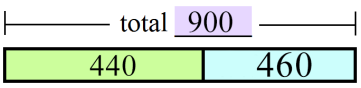
2. a. 14, 24, 25, 36 b. 28, 40, 27, 35 c. 9, 16, 49, 32 d. 56, 30, 48, 54

3. a. 7, 5, 8, 7 b. 8, 5, 11, 7 c. 9, 7, 4, 9 d. 10, 8, 3, 3

4. a. 310, 149 b. 620, 344 c. 148, 80

5. a. 33, 5 b. 643, 45 c. 15, 378

6.



460 + 440 = 900
900 − 460 = 440
900 − 440 = 460

7. 160 kilometres. Note that the half-way point is at 150 km. They stopped at 140 km (10 km before 150 km).

8. Equation: R400 + R400 – R600 = R200 (or 2 × R400 – R600 = R200)
Solution: He took R200 off the price.

9. a. 90 b. 610 c. 460

10. Round R88 to R90 and 489 to 490 or 500. Since 90 is close to 100, you can guess that five times 90 is possibly enough. You can add repeatedly: R90 + R90 + R90 + R90 + R90 = R450, which is not enough. But six times is enough: R450 + 90 = $540. He needs to mow the yard six times and then he can buy the jacket.

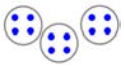
11. a.  is 294. Solve by subtracting 708 − 414. b.  is 824. Solve by adding 485 + 339.

12. a. R299 + R249 = R310 + *m*
b. Estimates may vary. R299 + R249 ≈ R300 + R250 = R550; R550 − R310 = R240. He needs about R240 more.
c. R299 + R249 = R548; R548 − R310 = R238. He needs R238 more.

13. a. 579. To check, add 579 + 383 = 962 using the grid. b. 157. To check, add 157 + 549 = 703 using the grid.

14. a. Estimate, rounding to the nearest ten:
80 + 540 + 150 + 10 = 780
b. By estimating with easier-to-add numbers, he can see that something is wrong with his calculation.
c. The 8 needs moved to the ones' column.

	1	2	
		8	2
	5	3	9
	1	5	4
+			8
	7	8	3

15. 

16. 75

17. a. 240 b. 490 c. 300

18. a. 7 × 4 = 28 legs
b. 5 × 2 = 10 legs
c. 8 × 4 + 6 × 2 = 44 legs

19. a. 48 b. 20 c. 41

20. Student equations will vary; check the student's equation.
a. *r* = 3 × 12. She needs 36 rolls.
b. *t* = 8 × 4. You need 8 tables.
c. C = 3 × R8 + 3 × R6. It would cost R42.
d. 4 × *b* = 28. She will need 7 bags.

21.

	a. 10:51	b. 5:38	c. 3:57
10 min. later	11:01	5:48	4:07

22. a. 19 minutes b. 31 minutes

23. a. 23 minutes b. 33 minutes

24. a. She watched for 17 minutes
b. It should go in at 5:45 PM.

25. a. 40 hours
    b. 10 hours
    c. 10 hours
    d. 45 hours

26. Three hours is a good number to have each tennis ball represent, since each player's practice hours is divisible by 3. Two could also be used, with half of a ball drawn to represent the odd hours.

Tennis Practice	
Ava	🎾🎾
Juan	🎾
Greg	🎾🎾🎾
Adelaide	🎾🎾🎾🎾

🎾 = 3 hours

27. a. Total: R18,60 Change: R1,40
    b. Total: R49 Change: R1

28. a. R89,45 b. R58,40 c. R98,85

29. His change is R10,30.

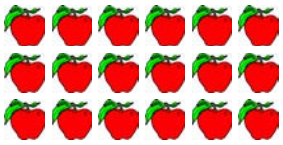
30. a. 5205 b. 2094
    c. 7300 d. 8002

31. a. 700 b. 2000

32. a. > b. < c. < d. > e. >

33. a. 5700; 8600 b. 1200; 7800

34. a. 5261; 5261 + 2888 = 8149
    b. 2687; 2687 + 3749 = 6436

35. 

$3 \times 6 = 18 \quad 18 \div 3 = 6$

$6 \times 3 = 18 \quad 18 \div 6 = 3$

36. a. 10 b. 8 c. 8
    d. 9 e. 5 f. 40
    g. 6 h. 108 i. 8

37. a. 17, not possible b. 1, not possible c. 1, 0

38. a. R16 + R14 ÷ 3 = R10. Each child paid R10.00.
    b. 6 × 10 + (10 − 1) = 69 (or 7 × 10 − 1 = 69). There are 69 passengers.
    c. 24 ÷ 6 = 4. They used 4 containers.

39. If you have printed from the digital version at 100% scaling, or you are using the printed book, the answers below should be accurate. If you printed from the digital version with "shrink to fit" or "scale to fit" or similar setting, the answers below do not match the questions. Check the student's answers.

    a. _____

    b. _____

40. mm cm m km

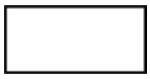
41. 355 g (grams)

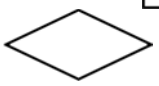
42. There are 12 litres of water.

43. a. km b. cm
    c. g d. kg
    e. ml f. ml

44. a. Shape 2
    b. Shape 3
    c. Shape 1
    d. Shape 4
    e. Shape 6
    f. Shape 5

45. a. Drawings will vary. Check the student's drawing. For example: 

b. Drawings will vary. It should be a rectangle that is not a square. For example: 

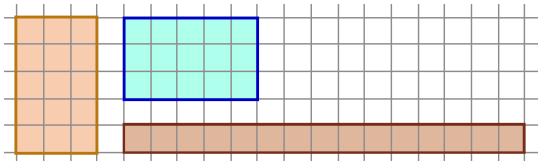
c. Drawings will vary. Check the student's drawing. For example: 

46. Perimeter 22 units; area 24 square units or squares.
Note that the student should also give the "units" and "square units" or "squares", not just a plain number.

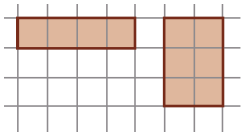
47. a. Part 1: 108 m^2 Part 2: 270 m^2 b. 96 m
Note that the student should also give the units "m^2" and "m" in his/her answer, not just plain numbers.

48. 9 cm

49. a. The sides of the rectangle could be 5 and 3, or 15 and 1.
Some examples are shown on the right.

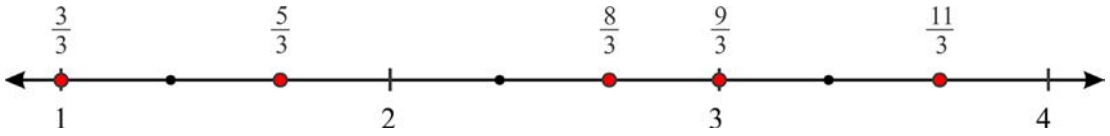


b. The sides of the rectangle could be 1 and 4, or 2 and 3.
See the image on the right.



50. $4 \times (2 + 5) = 4 \times 2 + 4 \times 5 = 28$ squares (or square units)

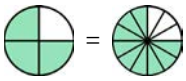
51. a. $\frac{3}{8}$ b. $\frac{5}{6}$ c. $\frac{8}{3}$ d. $\frac{2}{3}$ e. $\frac{9}{10}$

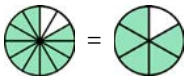
52. 

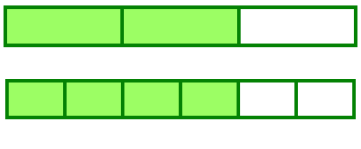
53.

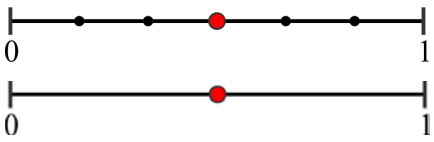
a. $\frac{6}{4}$ No	b. $\frac{8}{8} = 1$	c. $\frac{8}{2} = 4$	d. $\frac{2}{8}$ No	e. $\frac{13}{3}$ No	f. $\frac{24}{4} = 6$	g. $\frac{27}{3} = 9$	h. $\frac{20}{6}$ No

54.

a.  $\frac{3}{4} = \frac{9}{12}$

b.  $\frac{10}{12} = \frac{5}{6}$

c. $\frac{2}{3} = \frac{4}{6}$ 

55. 

56. a. < b. < c. = d. > e. =

57. a. Cannot make a valid comparison. b. = c. The fractions are 3/8 and 1/3, however you cannot make a valid comparison, because the shapes are not the same size.