# Math Mammoth End-of-the-Year Test, Grade 5
## Answer Key, International Version

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 |

## The Four Operations

1. a. 45    b. 409 344

2. a. $x = 296\ 430$    b. $Y = 80$    c. $N = 3\ 304$

3. All of these are correct:
   $4Y = 600$  or  $4 \times Y = 600$  or  $Y + Y + Y + Y = 600$  or  $600 \div 4 = Y$  or  $600 \div Y = 4$  or  $600 - Y - Y - Y - Y = 0$.
   Solution: $Y = 150$.

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

5. $(\$19.95 - \$5) \times 5$  or  $5 \times (\$19.95 - \$5)$. The total cost was $74.75.

6. No, it is not. Explanations vary. For example: It is an odd number, and therefore cannot be divisible by an even number. $991 \div 4 = 247$ R3, leaving a remainder, so 991 is not divisible by 4.

7. a. $26 = 2 \times 13$    b. $40 = 2 \times 2 \times 2 \times 5$    c. 59 is prime

## Large Numbers

8. a. 70 016 090    b. 32 000 232 000

9. It is about $32\ 000 \times 300 = 9\ 600\ 000$. Other estimates are also possible.

10. 80 million or 80 000 000

11.

| *number* | 593 204 | 19 054 947 |
|---|---|---|
| to the nearest 1 000 | 593 000 | 19 055 000 |
| to the nearest 10 000 | 590 000 | 19 050 000 |
| to the nearest 100 000 | 600 000 | 19 100 000 |
| to the nearest million | 1 000 000 | 19 000 000 |

## Problem Solving

12. A 3-metre-long board is 300 centimetres. One-sixth of that is $300 \text{ cm} \div 6 = 50 \text{ cm}$. The remaining piece is 250 centimetres, or 2 m 50 cm.

13. It would cost $9.00 to download ten songs. First, find the price of one song download: $\$5.40 \div 6 = \$0.90$. Then, multiply that by 10.

14. A lunch in the cafeteria costs 1/3 of $36, or $12. Mary spends $\$36 + 4 \times \$12 = \$84$.

15.



One block in the model is $\$42 \div 6 = \$7$. The red swimsuit costs $5 \times \$7 = \$35$. Together they cost $77.

16. a.


b. One block or part in the model is 134 ÷ 2 = 67 marbles. There are 3 × 67 = 201 purple marbles.

17. a. The DVD costs about $30. Karen pays 3/5 of it, which is about $30 ÷ 5 × 3 = $18. Ann pays about $12.

b. Karen pays $29.90 ÷ 5 × 3 = $17.94. Ann pays $11.96.

## Decimals

18. a. 0.289    b. 0.30    c. 0.305    d. 0.313

19. a. 0.95    b. 0.72    c. 0.62    d. 1.26    e. 1.05    f. 0.37

20. a. 0.08    b. 0.081    c. 5.21

21. a. $\dfrac{48}{1000}$    b. $1\dfrac{4}{1000}$    c. $7\dfrac{22}{100}$

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

23.

| rounded to... | nearest one | nearest tenth | nearest hundredth |
|---|---|---|---|
| 5.098 | 5 | 5.1 | 5.10 |

| rounded to... | nearest one | nearest tenth | nearest hundredth |
|---|---|---|---|
| 0.306 | 0 | 0.3 | 0.31 |

24.

| | | |
|---|---|---|
| a. 0.4 × 7 = 2.8 | d. 10 × 0.05 = 0.5 | g. 1.1 × 0.3 = 0.33 |
| b. 0.4 × 0.7 = 0.28 | e. 100 × 0.05 = 5 | h. 70 × 0.9 = 63 |
| c. 0.4 × 700 = 280 | f. 1000 × 0.5 = 500 | i. 20 × 0.09 = 0.18 |

25.

| | | |
|---|---|---|
| a. 0.36 ÷ 6 = 0.06 | c. 3 ÷ 100 = 0.03 | e. 16 ÷ 10 = 1.6 |
| b. 5.6 ÷ 7 = 0.8 | d. 0.7 ÷ 10 = 0.07 | f. 71 ÷ 100 = 0.71 |

26.

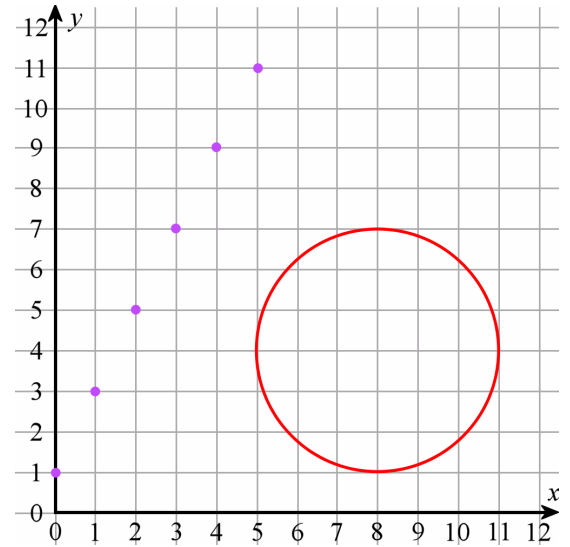| | | |
|---|---|---|
| a. 0.2 m = 20 cm | b. 0.4 L = 400 ml | c. 3 670 mm = 3 m 670 mm |
| 37 cm = 0.37 m | 3.5 kg = 3 500 g | 465 cm = 4 m 65 cm |
| 2.9 km = 2 900 m | 240 g = 0.24 kg | 4 060 g = 4 kg 60 g |

27. There are 444 millilitres in two bowls. Two litres is 2 000 ml. 2 000 ml ÷ 9 = 222.2 ml or about 222 ml.

28. a. 1.42    b. 14.28    b. 14.08

# Graphs

29.

| x | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| y | 1 | 3 | 5 | 7 | 9 | 11 |



30. See the image on the right.

31.

| Day | Sales (1 000 dollars) |
|-----|-----------------------|
| Mon | 125 |
| Tue | 114 |
| Wed | 118 |
| Thu | 130 |
| Fri | 158 |

a. See the line graph on the right.

b. The average daily sales is $129 000.



4
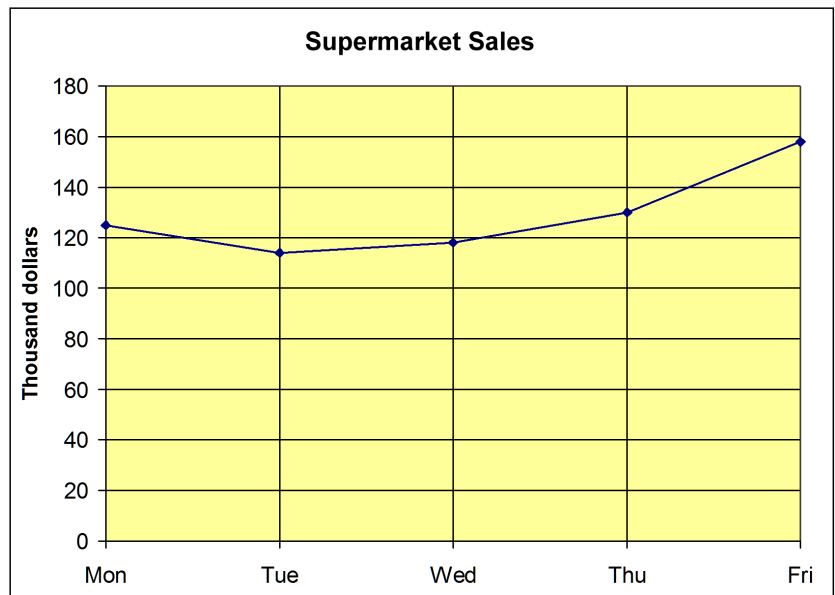
## Fractions

32. a. 6 1/3   b. 2 1/3   c. 13 4/5

33.
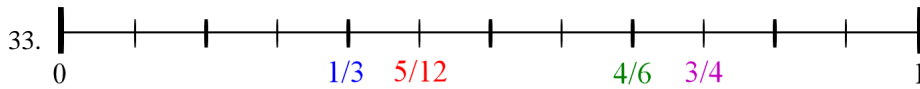

| | | | |
|---|---|---|---|
| **a.** $\dfrac{5}{6} = \dfrac{}{20}$ (crossed out) | **b.** $\dfrac{2}{7} = \dfrac{8}{28}$ | **c.** $\dfrac{3}{8} = \dfrac{15}{40}$ | **d.** $\dfrac{2}{9} = \dfrac{6}{27}$ |

34.

35. Martha found the common denominator (15) correctly, but forgets that the 2 fifths and the 2 thirds do not stay as 2 fifteenths in the conversion.



36. 1 1/6   b. 7/15   c. 5 5/8   d. 10 5/18

37. You would need $3 \times (2\ 3/4) = 8\ 1/4$ cups of flour to make three recipes of rolls.
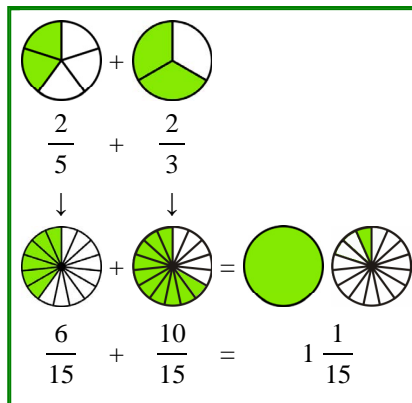
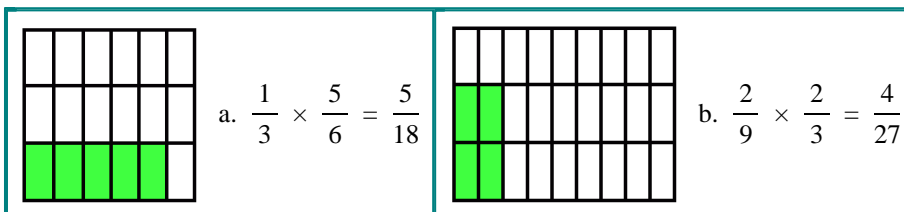38. a. $\dfrac{6}{9} > \dfrac{6}{13}$   b. $\dfrac{6}{13} < \dfrac{1}{2}$   c. $\dfrac{5}{10} > \dfrac{48}{100}$   d. $\dfrac{1}{4} = \dfrac{25}{100}$   e. $\dfrac{5}{7} > \dfrac{7}{10}$

39. a. 1 2/5
    b. cannot be simplified
    c. 7/8

40. Yes, it is correct. $(2/3) \times (1/2) = 1/3$.

41.



a. $\dfrac{1}{3} \times \dfrac{5}{6} = \dfrac{5}{18}$   b. $\dfrac{2}{9} \times \dfrac{2}{3} = \dfrac{4}{27}$

42. You can cut 60 pieces. 15 m ÷ (1/4 m) = 60

43. 1/6 of the pizza. (1/2) ÷ 3 = 1/6

44. a. 10 1/2   b. 1/21   c. 2 14/15   d. 18

# Geometry

45. Answers may vary. If you printed the test yourself, your printer may have scaled the document to fit, instead of printing it at 100%. Please check the measurements the student has given as his or her answer. Two possible sets of answers are:

    (Printed at 100%) The sides measure 7.9 cm, 6.8 cm, and 13.3 cm. The perimeter is 28 cm.

    (Print to fit) The sides might measure 7.5 cm, 6.5 cm, and 12.5 cm. The perimeter is 26.5 cm.

46. a. an isosceles acute triangle    b. a rhombus    c. a right scalene triangle    d. a trapezium

47. a. 9 m$^2$
    b. 20 cm

48. A trapezium is a quadrilateral with at least one pair of parallel sides. A square fulfils that definition, so it is classified as a trapezium, also.
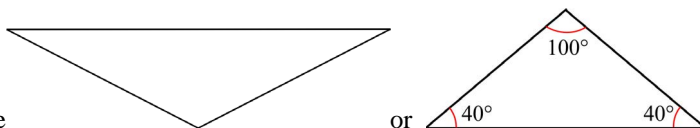
49. Yes, it can. For example                    or

50. a. Check the triangles that the student drew. The student should use a tool, such as a triangular ruler or a protractor, to make the right angle. The picture below may be slightly out of scale when printed, due to the possible variation in scaling during the printing process.
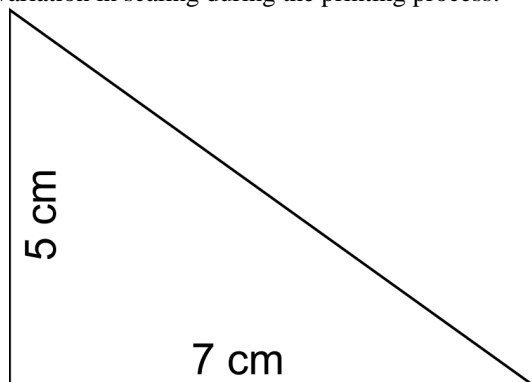
    b. 8.6 cm + 5 cm + 7 cm = 20.6 cm
    c. They measure _90°_, _36°_, and _54°_.

51. The volume is 5 cm $\times$ 10 cm $\times$ 4 cm = 200 cm$^3$.

52. a. 1.2 m $\times$ 0.6 m $\times$ 1 m = 0.72 m$^3$.
    b. 240 litres. 0.72 m$^3$ is 720 litres, and one-third of that is 240 litres.