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

The Four Operations

1. Solve (without a calculator).

a. 1,035 ÷ 23

45

b. 492 × 832

409344

2. Solve.

a. $x - 56{,}409 = 240{,}021$

296430 = X

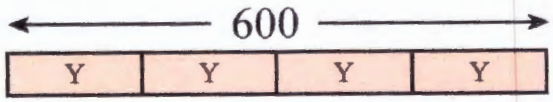
b. 7,200 ÷ Y = 90

Y = 80

c. N ÷ 14 = 236

N = 3304

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



Y × 4 = 600

Y = 150

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

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

$(19.95 - 5.00) \times 5 = 74.75$

14.95×5

6. Is 991 divisible by 4?

NO

Why or why not?

Because $991 \div 4 = 247.75$ and in order for it to be divisible there should be no decimal point

7. Factor the following numbers to their prime factors.

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

Large Numbers

8. Write the numbers.

a. 70 million 16 thousand 90 70,016,090

b. 32 billion 232 thousand 32,000,232,000

9. Estimate the result of 31,933 × 305.

$$\begin{array}{r} 32000 \\ \times\ 300 \\ \hline 000000 \\ 9600000 \end{array}$$

Estimat = 9,600,000

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

80 million

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	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

X 12. Jack has an 8-ft long board. He cuts off 1/6 of it.
How long is the remaining piece, in feet and inches?

? IDK

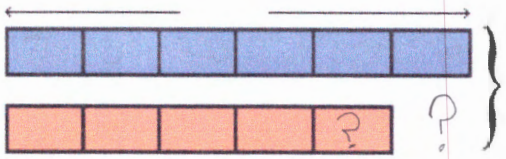
✓ 13. A website charges a fixed amount for each song download.
If you can download six songs for $4.68, then how much would it cost to download ten songs?

$7.80 for 10 songs

X 14. A lunch in a fancy restaurant is three times as expensive as a lunch 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?

$96 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?

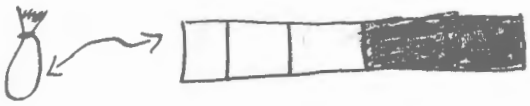


Mark the $42 in the bar model. Mark what is not known with "?". Solve.

$ 77

X 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?

192 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.

Karen - $18
Ann - $12

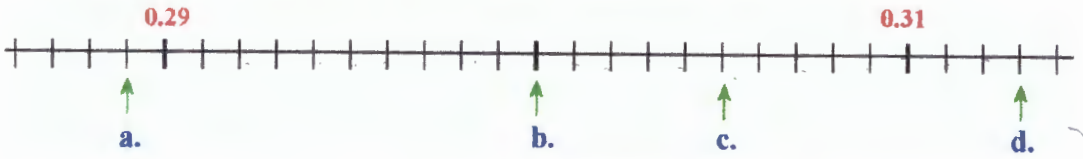
b. Find the exact amount of how much each person will pay.

Karen - $17.94
Ann - $11.96

$$\begin{array}{r} {}^{1}5.98 \\ \times\ 2 \\ \hline 11.96 \end{array} \qquad \begin{array}{r} {}^{2}5.98 \\ \times\ 3 \\ \hline 17.94 \end{array}$$

Decimals

18. Write the decimals indicated by the arrows.



a. .9 b. 0.30 c. .6 d. .4

19. Complete.

a. 0.9 + 0.05 = 0.95	b. 0.28 + .72 = 1	c. 0.82 − 0.2 = .62
d. 1.3 − 0.04 = 1.26	e. 0.25 + 0.8 = 1.05	f. .37 − 0.2 = 0.17

20. Write as decimals.

a. $\frac{8}{100}$ = 13.0 b. $\frac{81}{1000}$ = 12.32 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 [7] 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	5.000	5.1	5.10

rounded to...	nearest one	nearest tenth	nearest hundredth
0.306	0.0	.3	.31

24. Solve.

a. 0.4 × 7 = .28	d. 10 × 0.05 = 0.5	g. 1.1 × 0.3 = 1.3
b. 0.4 × 0.7 = .028	e. 100 × 0.05 = 5	h. 70 × 0.9 = 6.3
c. 0.4 × 700 = 280	f. 1000 × 0.5 = 50	i. 20 × 0.09 = .18

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.** 56 oz = _____ lb _____ oz
37 cm = _____ m	3.5 kg = _____ g	74 in. = _____ ft _____ in.
2.9 km = _____ m	240 g = _____ kg	15 C = _____ qt _____ C

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

28. Calculate.

a. $4.2 - 2.78$

b. $71.40 \div 5$

c. 2.2×6.4

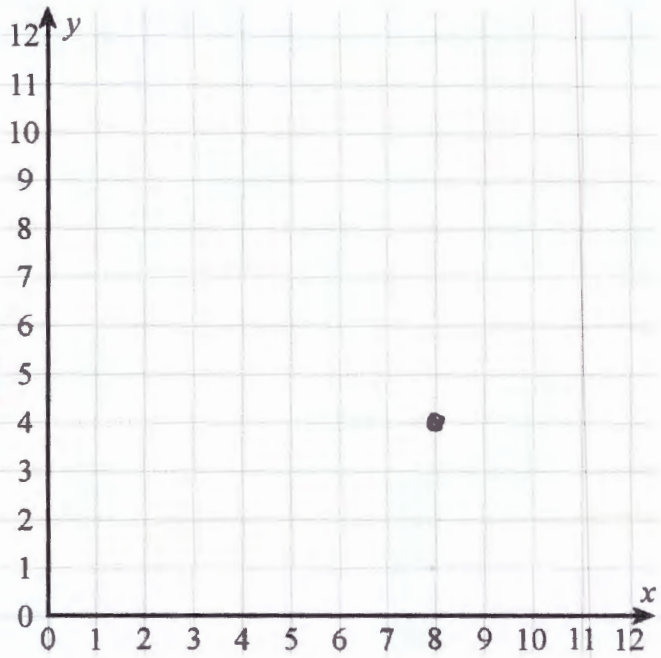
Graphs

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.

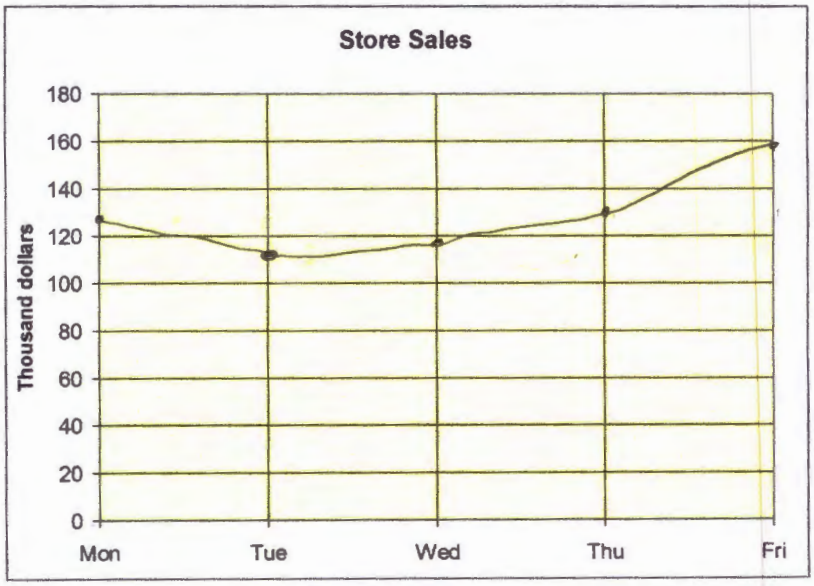
x	0	1	2	3	4	5
y	1	3	5	7	9	11



30. Draw in the grid a circle with a center point at (8, 4), and a radius of 3 units. ?

31. 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 in this period.

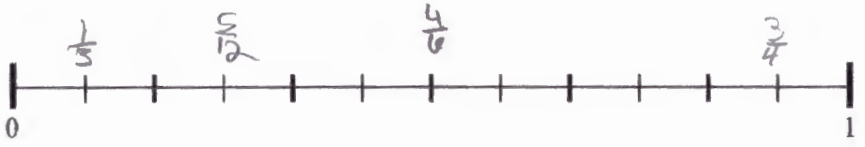
115

Fractions

32. Add and subtract.

a. X	b. X	X c.
$3\frac{7}{9}$ $+\ 2\frac{5}{9}$ $6\frac{12}{9}$	$5\frac{1}{6}$ $-\ 2\frac{5}{6}$ 8	$3\frac{7}{10}$ $+\ 2\frac{8}{10}$ $+\ 7\frac{3}{10}$ $15\frac{18}{10}=15\frac{4}{5}$

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

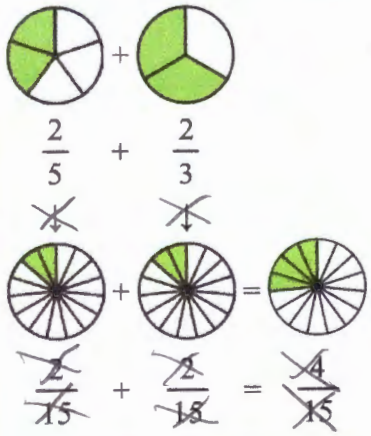


34. If you can find an equivalent fraction, write it. If you cannot, cross the whole problem out.

a. ~~$\frac{5}{6}=\frac{\ }{20}$~~	b. $\frac{2}{7}=\frac{8}{28}$	c. $\frac{3}{8}=\frac{15}{40}$	d. $\frac{2}{9}=\frac{6}{27}$

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

X = error



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

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

"I need these to have the same denominator."

$\frac{2}{5}+\frac{2}{3}=\frac{6}{15}+\frac{10}{15}=\frac{16}{15}=1\frac{1}{15}$

36. Add and subtract the fractions and mixed numbers.

a. $\frac{1}{3} + \frac{5}{6} = \frac{4}{12} + \frac{10}{12} = \frac{14}{12} = 1\frac{2}{12} = 1\frac{1}{6}$	**b.** $\frac{4}{5} - \frac{1}{3} = \frac{12}{15} - \frac{5}{15} = \frac{7}{15}$
c. $\frac{1}{8} - \frac{1}{2} = \frac{2}{16} - \frac{8}{16} = \frac{6 \div 2}{16 \div 2} = \frac{3}{8}$	**d.** $6\frac{7}{9} + 8\frac{1}{2} = \frac{14}{18} + \frac{9}{18} = \frac{23}{18} = 10\frac{5}{18}$

37. 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.

$\frac{3}{4} + \frac{3}{4} + \frac{3}{4} = \frac{9}{4} = 8\frac{1}{4}$

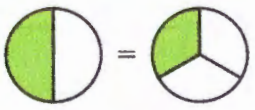
38. Compare the fractions, and write <, >, or = in the box.

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

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

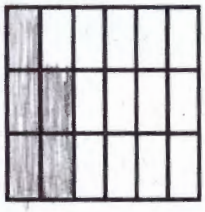
a. $\frac{21}{15} = 1\frac{6}{15}$	**b.** $\frac{29}{36} = \frac{29}{36}$	**c.** $\frac{42}{48} = \frac{21}{24}$

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

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

It is correct ♥

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



a. $\frac{1}{3} \times \frac{5}{6} = \frac{5}{18}$

b. $\frac{2}{9} \times \frac{2}{3} = \frac{4}{27}$

X 42. How many 1/4-inch pieces can you cut from a string that is 15 inches long?

12

X 43. Three people share half a pizza evenly. What fractional part of the original pizza does each one get?

$\frac{4}{12}$ for each person

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

a. $\frac{7}{6} \times 9 = \frac{7}{4} \times \frac{9}{1} = \frac{63}{6}$

$10\frac{3}{6} = 10\frac{1}{2}$

b. $\frac{1}{7} \div 3 = \frac{1}{7} \div \frac{3}{1} = \frac{1}{7} \times \frac{1}{3} =$

$\frac{1}{21}$

c. $\frac{4}{5} \times 3\frac{2}{3} = \frac{4}{5} \times \frac{11}{3} = \frac{44}{15}$

$2\frac{14}{15}$ ←

d. $2 \div \frac{1}{9} = \frac{2}{1} \times \frac{9}{1} = \frac{18}{1} =$

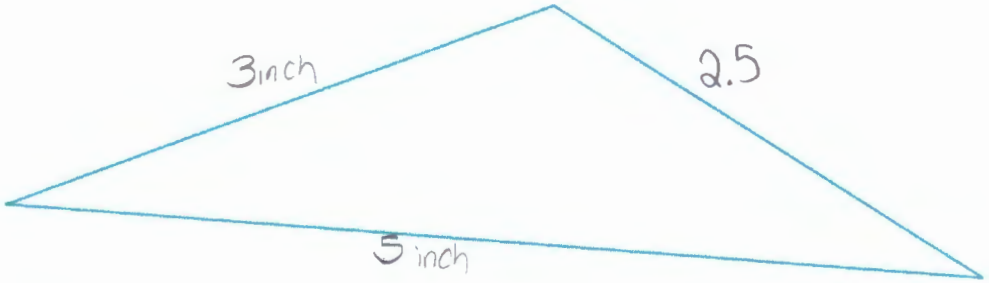
18

Geometry

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

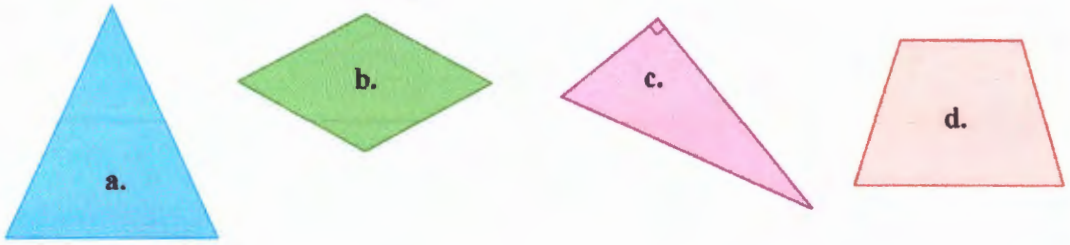
15
×2
30

X 30.5 inches



2 1.5
×4
6

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



a. Triangle

b. Quadrilateral

c. Triangle

d. Quadrilateral

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

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

X 48. Is a square a trapezoid? Why or why not? ?

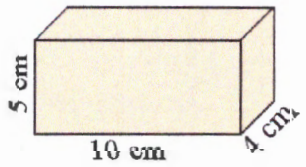
49. Can an obtuse triangle be isosceles?
If not, explain why not.
If yes, sketch an example.

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.



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 meters.

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