



Solving Word Problems: Modeling Multiplication, Division, and Multi-Step Word Problems with the Tape Diagram

Grades 3–5

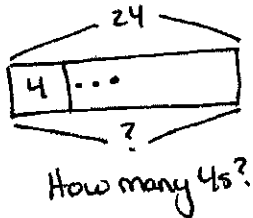
Answer Key

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Problem Set 1

1. Daniel’s fish tank holds 24 liters of water. He uses a 4-liter bucket to fill the tank. How many buckets of water are needed to fill the tank? (G3 M2 L9)

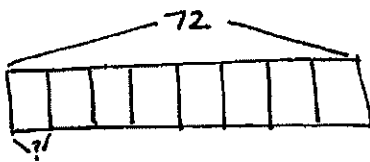
Equal Groups,
Number of Groups Unknown



$24 \div 4 = 6$
Daniel needs 6 buckets of water to fill the tank.

2. Mr. Doyle shares 1 roll of bulletin board paper equally with 8 teachers. The total length of the roll is 72 meters. How much bulletin board paper does each teacher get? (G3 M3 L15)

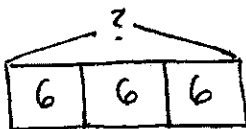
Equal Groups,
Group Size Unknown



$72 \div 8 = 9$
Each teacher gets 9 meters of bulletin board paper.

3. A guitar has 6 strings. How many strings are there on 3 guitars? (G3 M1 L10)

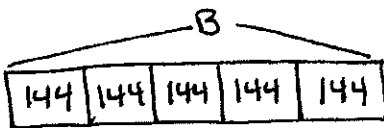
Equal Groups,
Unknown Product



$3 \times 6 = 18$
There are 18 strings on 3 guitars.

4. Every day at the bagel factory, Cyndi makes 5 different kinds of bagels. If she makes 144 of each kind, what is the total number of bagels that she makes? (G4 M3 L8)

Equal Groups,
Unknown Product



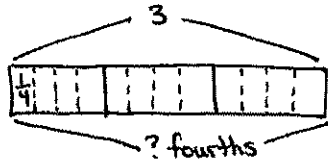
$5 \times 144 = 720$

$$\begin{array}{r} 144 \\ \times \quad 5 \\ \hline 720 \end{array}$$

Cyndi makes a total of 720 bagels.

Measurement and Partitive Division with Fractional Divisors

1. Anouk has 3 pounds of ground beef. She uses it all to make $\frac{1}{4}$ pound patties. How many patties does Anouk make?

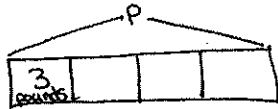


$$3 \div \frac{1}{4} = 12$$

Anouk makes 12 patties.

Equal Groups,
Number of Groups Unknown

2. Anouk has 3 pounds of ground beef, which is $\frac{1}{4}$ of what she needs. How many pounds of ground beef does Anouk need?



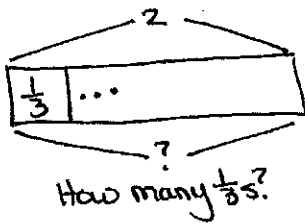
1 unit = 3 pounds
4 units = 12 pounds

$$3 \div \frac{1}{4} = 12$$

Anouk needs 12 pounds of ground beef.

Equal Groups,
Group Size Unknown

3. Jocelyn plans to run 2 miles while her children play. Each loop around the playground is $\frac{1}{3}$ mile. How many loops will Jocelyn run in order to meet her goal?



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

Jocelyn will run 6 loops in order to meet her goal.

Equal Groups,
Number of Groups Unknown

4. Jocelyn runs for 2 miles and completes $\frac{1}{3}$ of the race. How long is the entire race?



1 unit = 2 miles
3 units = 6 miles

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

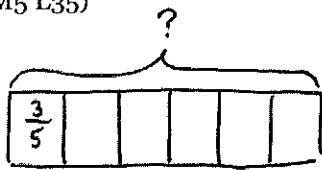
The entire race is 6 miles long.

Equal Groups,
Group Size Unknown

Equal Groups,
Unknown Product

Problem Set 2A

1. Maria needs $\frac{3}{5}$ yard of fabric for each costume. How many yards of fabric does she need for 6 costumes? (G4 M5 L35)

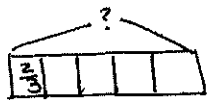


$$6 \times \frac{3}{5} = 6 \times 3 \text{ fifths}$$

$$= 18 \text{ fifths} = \frac{18}{5} = 3\frac{3}{5}$$

Maria needs $3\frac{3}{5}$ yards of fabric.

2. Mrs. Smith bought some orange juice. Each member of her family drank $\frac{2}{3}$ cup for breakfast. There are 5 people in her family. How many cups of orange juice did they drink? (G4 M5 L35)

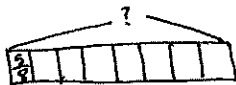


$$5 \times \frac{2}{3} = 5 \times 2 \text{ thirds}$$

$$= 10 \text{ thirds} = \frac{10}{3} = 3\frac{1}{3}$$

They drank $3\frac{1}{3}$ cups of orange juice.

3. The baker needs $\frac{5}{8}$ cup of raisins to make a batch of cookies. How many cups of raisins are needed for 7 batches of cookies? (G4 M5 L37)

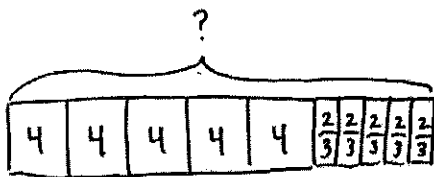


$$7 \times \frac{5}{8} = 7 \times 5 \text{ eighths} = 35 \text{ eighths}$$

$$= \frac{35}{8} = 4\frac{3}{8}$$

$4\frac{3}{8}$ cups of raisins are needed for 7 batches of cookies.

4. For one dance costume, Saisha needs $4\frac{2}{3}$ feet of ribbon. How much ribbon does she need for 5 identical costumes? (G4 M5 L37)



$$5 \times 4\frac{2}{3} = (5 \times 4) + (5 \times \frac{2}{3})$$

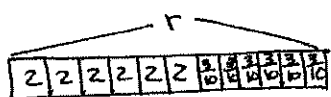
$$= 20 + \frac{10}{3}$$

$$= 20 + 3\frac{1}{3}$$

$$= 23\frac{1}{3}$$

Saisha needs $23\frac{1}{3}$ ft of ribbon.

5. Sara's street is $2\frac{3}{10}$ miles long. She ran the length of the street 6 times. How far did she run? (G4 M5 L37)



Sara ran $13\frac{7}{10}$ miles.

$$6 \times 2\frac{3}{10} = (6 \times 2) + (6 \times \frac{3}{10})$$

$$= 12 + \frac{18}{10}$$

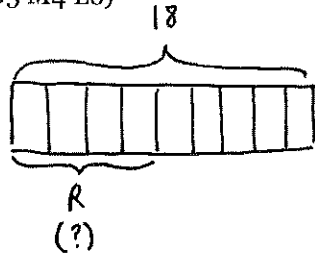
$$= 12 + 1\frac{7}{10}$$

$$= 13\frac{7}{10}$$

Fraction of a Set:
Equal Groups,
Group Size Unknown, and
Unknown Product

Problem Set 2B

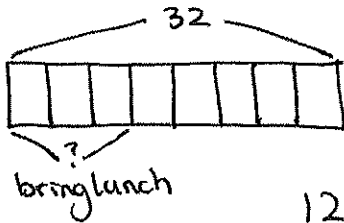
1. Sara just turned 18 years old. She spent $\frac{4}{9}$ of her life living in Rochester, NY. How many years did Sara live in Rochester? (G5 M4 L6)



9 units = 18
 1 unit = $18 \div 9 = 2$
 4 units = $4 \times 2 = 8$

Sara lived in Rochester for 8 years.

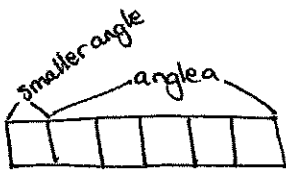
2. There are 32 students in a class. Of the class, $\frac{3}{8}$ of the students bring their own lunches. How many students bring their lunches? (G5 M4 L6)



8 units = 32
 1 unit = 4
 $\frac{3}{8}$ of 32 = 12
 3 units = $3 \times 4 = 12$

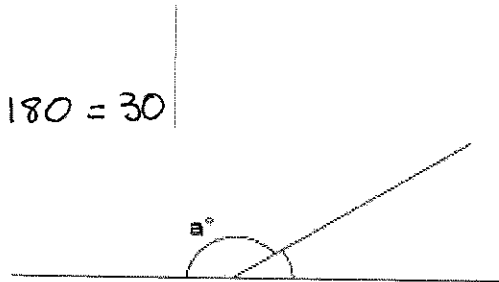
12 students bring their lunches.

3. A straight angle is split into two smaller angles as shown. The smaller angle's measure is $\frac{1}{6}$ that of the straight angle. What is the value of angle a? (G5 M4 L7)

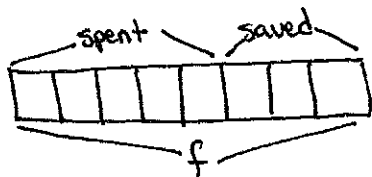


6 units = 180°
 1 unit = 30°
 5 units = 150°
 $\frac{1}{6}$ of 180 = 30

The value of angle a is 150° .



4. Abbie spent $\frac{5}{8}$ of her money and saved the rest. If she spent \$45, how much money did she have at first? (G5 M4 L7)

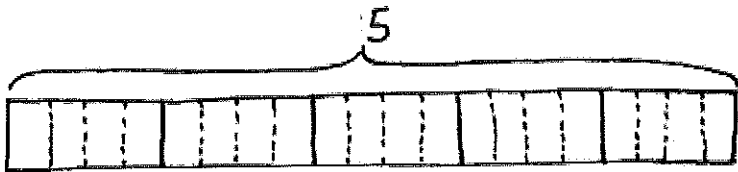


5 units = 45
 1 unit = 9
 8 units = 72

Abbie had \$72 at first.

Problem Set 2C

1. Tien wants to cut $\frac{1}{4}$ foot lengths from a board that is 5 feet long. How many boards can he cut? (G5 M4 L25)

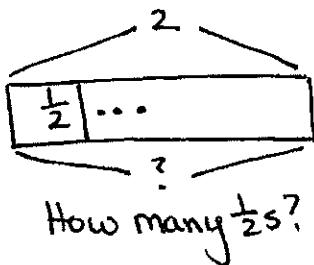


$$5 \div \frac{1}{4} = 20$$

Equal Groups,
Number of Groups Unknown

Tien can cut 20 boards.

2. Jenny buys 2 pounds of pecans. If she puts a $\frac{1}{2}$ pound in each bag, how many bags can she make? (G5 M4 L25)

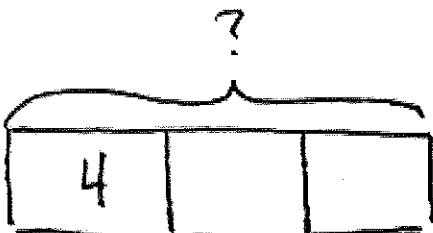


$$2 \div \frac{1}{2} = 4$$

Jenny can make 4 bags.

Equal Groups,
Number of Groups Unknown

3. Four baby socks can be made from $\frac{1}{3}$ skein of yarn. How many baby socks can be made from a whole skein? (G5 M4 L32)

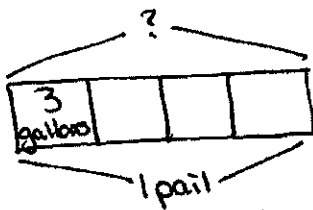


$$4 \div \frac{1}{3} = 12$$

12 socks can be made from 1 whole skein.

Equal Groups,
Group Size Unknown

4. Three gallons of water fill $\frac{1}{4}$ of the elephant's pail at the zoo. How much water does the pail hold? (G5 M4 L25)



$$3 \div \frac{1}{4} = 12$$

$$1 \text{ unit} = 3$$

$$4 \text{ units} = 12$$

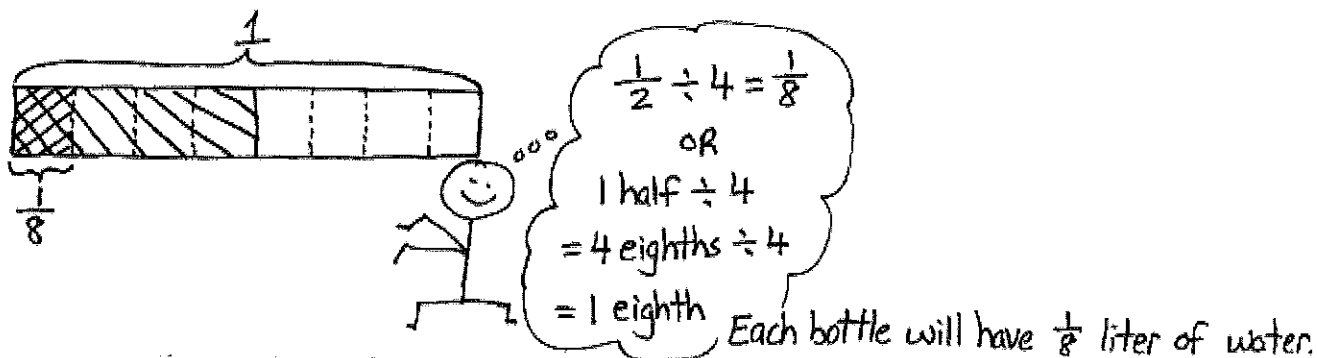
The pail holds 12 gallons.

Equal Groups,
Group Size Unknown

Problem Set 2D

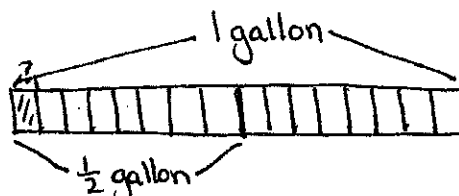
Equal Groups,
Group Size Unknown

1. If Melanie pours $\frac{1}{2}$ liter of water into 4 cups, putting an equal amount in each, how many liters of water will be in each bottle? (G5 M4 L26)



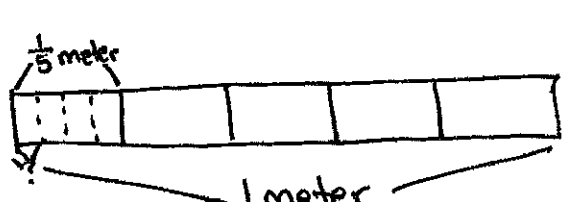
$\frac{1}{2} \div 4 = \frac{1}{8}$
OR
1 half \div 4
= 4 eighths \div 4
= 1 eighth
Each bottle will have $\frac{1}{8}$ liter of water.

2. Mrs. Appler used $\frac{1}{2}$ gallon of olive oil to make 8 identical batches of salad dressing. How many gallons of oil did she use in each batch of salad dressing? (G5 M4 L26)



$\frac{1}{2} \div 8 = \frac{1}{16}$
-or-
1 half \div 8
= 8 sixteenths \div 8
= 1 sixteenth
Mrs. Appler used $\frac{1}{16}$ gallon of oil in each batch of salad dressing.

3. The perimeter of a square is $\frac{1}{5}$ meter. Find the length of each side in meters. (G5 M4 L27)



$\frac{1}{5} \div 4 = \frac{1}{20}$
1 fifth \div 4
= 4 twentieths \div 4
= 1 twentieth
The length of each side in meters is $\frac{1}{20}$ meter.

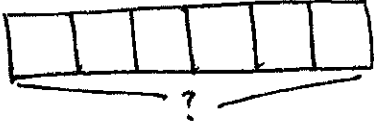
STOP

Problem Set 3

1. A narrow rectangular banner is 5 inches wide. It is 6 times as long as it is wide. How long is the rectangular banner? (adapted from G4 M3 L2)

Compare,
A > 1, Larger Unknown

width 5

length 


$6 \times 5 = 30$

The rectangular banner is 30 inches long.

2. Yi Ting weighs 8.3 kg. Her older brother is 4 times as heavy as Yi Ting. How much more does her older brother weigh in kilograms? (G5 M1 L12)

Compare,
A > 1, Larger Unknown

Yi Ting 8.3kg

brother 

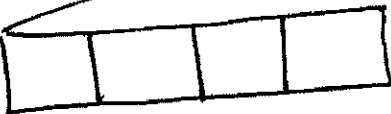
1 unit = 8.3
3 units = 24.9


$$\begin{array}{r} 8.3 \\ \times 3 \\ \hline 24.9 \end{array}$$

Yi Ting's older brother weighs 24.9 kg more than her.

3. Jamie drank 4 times as much juice as Brodie. Jamie drank 280 milliliters of juice. How much juice did Brodie drink? (G4 M3 L26)

Compare,
A > 1, Smaller Unknown

Jamie 

Brodie 

4 units = 280
1 unit = 70

Brodie drank 70 milliliters of juice.

4. A toy airplane costs \$4.84. It costs 4 times as much as a toy car. What is the total cost of the airplane and the car? (G5 M1 L13)

A tape diagram with two rows. The top row is labeled 'airplane' and has 4 equal segments, with a bracket above it labeled '\$4.84'. The bottom row is labeled 'car' and has 1 segment. A bracket on the right side of both rows is labeled with a question mark '?'.

Handwritten notes:

4 units = \$4.84

1 unit = \$1.21

5 units = \$6.05

Handwritten division:

$$\begin{array}{r} 1.21 \\ 4 \overline{)4.84} \\ \underline{-4} \\ 08 \\ \underline{-8} \\ 04 \\ \underline{-4} \\ 0 \end{array}$$

The total cost of the airplane and car is \$6.05.

Compare,
A > 1, Smaller Unknown

5. Tyler planted potatoes, oats, and corn. He planted 23 acres of potatoes. He planted 3 times as many acres of oats as potatoes, and he planted 4 times as many acres of corn as oats. How many acres did Tyler plant with potatoes, oats, and corn in all? (G4 M3 L14)

A tape diagram with three rows. The top row is labeled 'potatoes' and has 1 segment with '23' written inside. The middle row is labeled 'oats' and has 3 segments. The bottom row is labeled 'corn' and has 12 segments. A bracket on the right side of all three rows is labeled with a question mark '?'.

Handwritten multiplication:

$$\begin{array}{r} 23 \\ \times 3 \\ \hline 69 \end{array}$$

$$\begin{array}{r} 69 \\ \times 4 \\ \hline 276 \end{array}$$

$$\begin{array}{r} 23 \\ 69 \\ +276 \\ \hline 368 \end{array}$$

Tyler planted 368 acres in all.

Compare,
A > 1, Larger Unknown

6. Alaska has a land area of about 1,700,000 square kilometers. Florida has a land area $\frac{1}{10}$ the size of Alaska. What is the land area of Florida? (G5 M1 L2)

A tape diagram with 10 equal segments. A bracket above the entire row is labeled '1,700,000'. The first segment is shaded with diagonal lines and has a question mark '?' written below it.

Handwritten notes:

10 units = 1,700,000

1 unit = 170,000

The land area of Florida is 170,000 square kilometers.

Compare,
A < 1, Smaller Unknown

7. Canada has a population that is about $\frac{1}{10}$ as large as the United States. If Canada's population is about 32 million, about how many people live in the United States? (G5 M1 L2)

A tape diagram with 10 equal segments. A bracket above the entire row is labeled with a question mark '?'. The first segment is shaded with diagonal lines and has '32 million' written below it.

Handwritten notes:

1 unit = 32 millions

10 units = 10 x 32 millions

= 320 millions

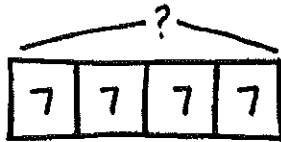
= 320,000,000

About 320 million people live in the United States.

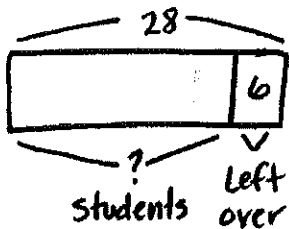
Compare,
A < 1, Larger Unknown

GRADE 3

1. Miss Lianto orders 4 packs of 7 markers. After passing out 1 marker to each student in her class, she has 6 left. How many students are in Miss Lianto’s class? (G3 M1 L21)



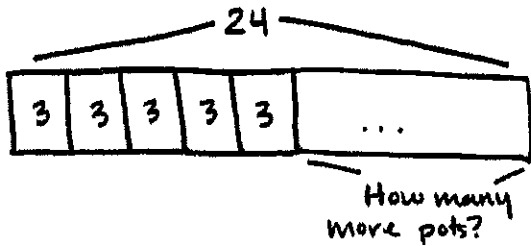
$$4 \times 7 = 28$$



$$28 - 6 = 22$$

There are 22 students in Miss Lianto's class.

2. Anna buys 24 seeds and plants 3 in each pot. She has 5 pots. How many more pots does Anna need to plant all of her seeds? (G3 M1 L21)



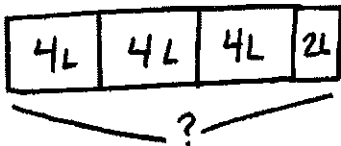
$$5 \times 3 = 15$$

$$24 - 15 = 9$$

$$9 \div 3 = 3$$

Anna needs 3 more pots for her seeds.

3. Marian pours a full container of water equally into buckets. Each bucket has a capacity of 4 liters. After filling 3 buckets, she still has 2 liters left in her container. What is the capacity of her container? (G3 M2 L11)



$$3 \times 4L = 12L$$

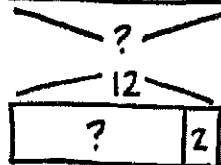
$$12L + 2L = 14L$$

Marian's container has a capacity of 14 liters.

4. Richard has 2 cartons with 6 eggs in each. As he opens the cartons, he drops 2 eggs. How many unbroken eggs does Richard have left? (G3 M3 L8)



$$2 \times 6 = 12$$



$$12 - 2 = 10$$

Richard has 10 unbroken eggs.

5. Leo earns \$8 each week for doing chores. After 7 weeks, he buys a gift and has \$38 left. How much money does he spend on the gift? (G3 M3 L11)

$$\begin{array}{r} 416 \\ 56 \\ -38 \\ \hline 18 \end{array}$$

Leo spends \$18 on the gift.

6. Cora weighs 4 new, identical pencils and a ruler. The total weight of these items is 55 grams. She weighs the ruler by itself, and it weighs 19 grams. How much does each pencil weigh? (G3 M3 L18)

$$55g - 19g = 36g$$

$$36g \div 4 = 9g$$

Each pencil weighs 9 grams.

7. Joe has \$173 in the bank. He earns the same amount of money each week for 7 weeks and puts this money in the bank. Now, Joe has \$208 in the bank. How much money does Joe earn each week? (G3 M3 L18)

$$\begin{array}{r} 110 \\ \$208 \\ -\$173 \\ \hline \$35 \end{array}$$

$$\$35 \div 7 = \$5$$

Joe earns \$5 each week.

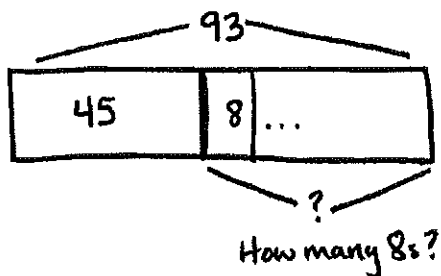
8. Julio spends 29 minutes doing his spelling homework. He then completes each math problem in 4 minutes. There are 7 math problems. How many minutes does Julio spend on his homework in all? (G3 M3 L18)

$$7 \times 4 = 28$$

$$\begin{array}{r} 28 \\ +29 \\ \hline 57 \end{array}$$

Julio spends 57 minutes on homework.

9. Tanner’s beaker had 45 milliliters of water in it at first. After each of his friends poured in 8 milliliters, the beaker contained 93 milliliters. How many friends poured water into Tanner’s beaker? (G3 M3 L18)

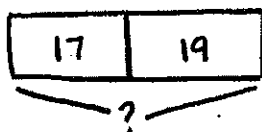


$$\begin{array}{r} 813 \\ 93 \\ -45 \\ \hline 48 \end{array}$$

$$48 \div 8 = 6$$

6 friends poured water into Tanner’s beaker.

10. At the city zoo, they see 17 young bats and 19 adult bats. The bats are placed equally into 4 areas. How many bats are in each area? (G3 M7 L1)



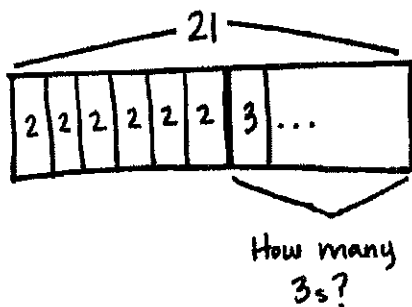
$$\begin{array}{r} 17 \\ +19 \\ \hline 36 \end{array}$$

There are 9 bats in each area.



$$36 \div 4 = 9$$

11. Kami scored a total of 21 points during her basketball game. She made 6 two-point shots, and the rest were three-point shots. How many three-point shots did Kami make? (G3 M7 L2)



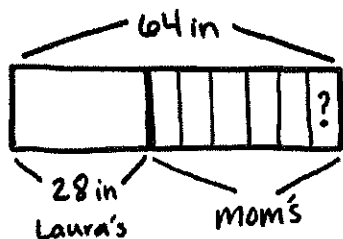
$$6 \times 2 = 12$$

$$21 - 12 = 9$$

$$9 \div 3 = 3$$

Kami made 3 three-point shots.

12. Laura cuts 64 inches of ribbon into two parts and gives her mom one part. Laura’s part is 28 inches long. Her mom cuts her ribbon into 6 equal pieces. How long is one of her mom’s pieces of ribbon? (G3 M7 L3)



$$64 \text{ in} - 28 \text{ in} = 36 \text{ in}$$

$$36 \text{ in} \div 6 = 6 \text{ in}$$

One piece of her mom’s ribbon is 6 inches.

GRADE 4

1. A restaurant sells 1,725 pounds of spaghetti and 925 pounds of linguini every month. After 9 months, how many pounds of pasta does the restaurant sell? (G4 M3 L11)

$$\begin{array}{r} 1,725 \\ + 925 \\ \hline 2,650 \end{array}$$

$$\begin{array}{r} 2,650 \\ \times 9 \\ \hline 23,850 \end{array}$$

The restaurant sells 23,850 pounds of pasta after 9 months.

$P = 23,850$

2. Audrey and her sister found 9 dimes and 8 pennies. If they share the money equally, how much money will each sister get? (G4 M3 L17)

$9 \times 10 = 90$

$8 \times 1 = 8$

$90 + 8 = 98$

$$\begin{array}{r} 49 \\ 2 \overline{) 98} \\ \underline{-8} \\ 18 \\ \underline{-18} \\ 0 \end{array}$$

$M = 49$

Each sister gets 49¢.

3. There are twice as many cows as goats on a farm. All the cows and goats have a total of 1,116 legs. How many goats are there? (G4 M3 L29)

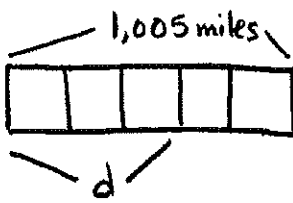
$$\begin{array}{r} 372 \\ 3 \overline{) 1,116} \\ \underline{-9} \\ 21 \\ \underline{-21} \\ 06 \\ \underline{-6} \\ 0 \end{array}$$

$$\begin{array}{r} 93 \\ 4 \overline{) 372} \\ \underline{-36} \\ 12 \\ \underline{-12} \\ 0 \end{array}$$

$G = 93$

There are 93 goats.

4. Every day, Sarah drives the same distance to work and back home. If Sarah drove 1,005 miles in 5 days, how far did Sarah drive in 3 days? (G4 M3 L31)



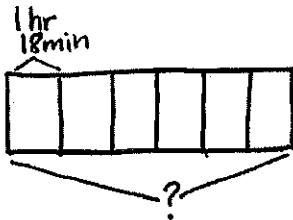
$$\begin{array}{r} 201 \\ 5 \overline{) 1,005} \\ \underline{-10} \\ 00 \\ \underline{-0} \\ 05 \\ \underline{-5} \\ 0 \end{array}$$

$$\begin{array}{r} 201 \\ \times 3 \\ \hline 603 \end{array}$$

$d = 603$ miles

Sarah drives 603 miles in 3 days.

5. Sarah read for 1 hour 18 minutes each day for 6 days. If she took 3 minutes to read each page, how many pages did she read in 6 days? (G4 M7 L11)



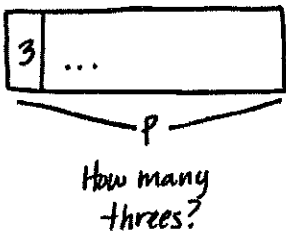
1 hr 18 min = 78 min

$$\begin{array}{r} 78 \\ \times 6 \\ \hline 468 \end{array}$$

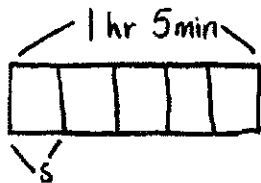
$$\begin{array}{r} 156 \\ 3 \overline{) 468} \\ \underline{-3} \\ 16 \\ \underline{-15} \\ 18 \\ \underline{-18} \\ 0 \end{array}$$

$P = 156$

Sarah read 156 pages in 6 days.



6. Beth Ann practiced piano for 1 hour 5 minutes each day for 1 week. She had 5 songs to practice and spent the same amount of time practicing each song. How long did she practice each song during the week? (G4 M6 L11)



1 hr = 60 min
1 hr 5 min = 65 min
 $s = 13$ min

$$\begin{array}{r} 13 \\ 5 \overline{) 65} \\ \underline{-5} \\ 15 \\ \underline{-15} \\ 0 \end{array}$$



$P = 7 \times 13$ min
 $P = 91$ min

$$\begin{array}{r} 13 \\ \times 7 \\ \hline 91 \end{array}$$

Beth Ann practices each song for 91 minutes each week.

7. A piece of yellow yarn was 230 inches long. After 90 inches had been cut from it, the piece of yellow yarn was twice as long as a piece of blue yarn. At first, how much longer was the yellow yarn than the blue yarn? (G4 M1 L17)

Yellow
Blue

$$\begin{array}{r} 113 \\ 230 \\ - 90 \\ \hline 140 \end{array}$$

$$140 \div 2 = 70$$

$$\begin{array}{r} 113 \\ 230 \\ - 70 \\ \hline 160 \end{array}$$

$y = 160$

The yellow yarn was 160 inches longer than the blue yarn at first.

8. The small copier makes 437 copies each day. The large copier makes 4 times as many copies each day. How many copies does the large copier make each week? (G4 M3 L12)

small
large

$$\begin{array}{r} 437 \\ \times 4 \\ \hline 1748 \end{array}$$

$$\begin{array}{r} 1,748 \\ \times 7 \\ \hline 12,236 \end{array}$$

$C = 12,236$

The large copier made 12,236 copies each week.

9. Sarah bought a shirt on sale for \$35. The original price of the shirt was 3 times that amount. Sarah also bought a pair of shoes on sale for \$28. The original price of the shoes was 5 times that amount. Together, how much money did the shirt and shoes cost before they went on sale? (G4 M3 L13)

Shirt
shoes

$$\begin{array}{r} 35 \\ \times 3 \\ \hline 105 \end{array}$$

$$\begin{array}{r} 28 \\ \times 5 \\ \hline 140 \end{array}$$

$$\begin{array}{r} 105 \\ + 140 \\ \hline 245 \end{array}$$

$C = \$245$

The shoes and shirt cost \$245 before the sale.

10. In one month, Charlie read 814 pages. In the same month, his mom read 4 times as many pages as Charlie, and that was 143 pages more than Charlie's dad read. What was the total number of pages read by Charlie and his parents? (G4 M3 L13)

Charlie
Mom
Dad

$$\begin{array}{r} 814 \\ \times 4 \\ \hline 3,256 \end{array}$$

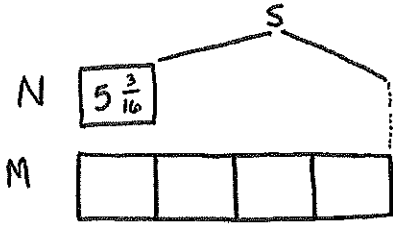
$$\begin{array}{r} 3,256 \\ - 143 \\ \hline 3,113 \end{array}$$

$$\begin{array}{r} 3,256 \\ + 3,113 \\ + 814 \\ \hline 7,183 \end{array}$$

$P = 7,183$

Charlie and his parents read a total of 7,183 pages.

11. Natasha's sculpture was $5\frac{3}{16}$ inches tall. Maya's was 4 times as tall. How much shorter was Natasha's sculpture than Maya's? (G4 M5 L39)

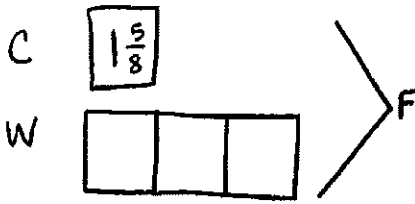


or I could solve in 1 step by finding 3 units of $5\frac{3}{16}$!

$$\begin{aligned}
 4 \times 5\frac{3}{16} &= (4 \times 5) + (4 \times \frac{3}{16}) & 20\frac{12}{16} - 5\frac{3}{16} &= 15\frac{9}{16} \\
 &= 20 + \frac{12}{16} & S &= 15\frac{9}{16} \\
 &= 20\frac{12}{16}
 \end{aligned}$$

Natasha's sculpture is $15\frac{9}{16}$ inches shorter than Maya sculpture.

12. A seamstress needs $1\frac{5}{8}$ yards of fabric to make a child's dress. She needs 3 times as much fabric to make a woman's dress. How many yards of fabric does she need for both dresses? (G4 M5 L39)



or I could solve for 4 units of $1\frac{5}{8}$!

$$\begin{aligned}
 3 \times 1\frac{5}{8} &= (3 \times 1) + (3 \times \frac{5}{8}) & 4\frac{7}{8} + 1\frac{5}{8} &= 5\frac{12}{8} \\
 &= 3 + \frac{15}{8} & &= 6\frac{4}{8} \\
 &= 4\frac{7}{8} & F &= 6\frac{1}{2}
 \end{aligned}$$

She needs $6\frac{1}{2}$ yards of fabric for both dresses.

GRADE 5

1. Esperanza usually buys avocados for \$0.94 apiece. During a sale, she gets 5 avocados for \$4.10. How much money did she save per avocado? (G5 M1 L5)

$$5 \overline{) \$4.10}$$

$$\begin{array}{r} \$0.82 \\ -\$0.82 \\ \hline \$0.12 \\ M = \$0.12 \end{array}$$

Esperanza saves \$0.12 per avocado.

2. Mrs. Zamir wants to buy 8 protractors and some erasers for her classroom. She has \$30. If protractors cost \$2.65 each, how much will Mrs. Zamir have left to buy erasers? (G5 M1 L11)

$$\begin{array}{r} \$2.65 \\ \times 8 \\ \hline \$21.20 \end{array}$$

$$\begin{array}{r} 29\ 10 \\ \cancel{\$30.00} \\ -\$21.20 \\ \hline \$8.80 \\ e = \$8.80 \end{array}$$

Mrs. Zamir has \$8.80 left to buy erasers.

3. Tim is painting his storage shed. He buys 4 gallons of white paint and 3 gallons of blue paint. Each gallon of white paint costs \$15.72, and each gallon of blue paint is \$21.87. How much will Tim spend in all on paint? (G5 M1 L12)

$$\begin{array}{r} \$15.72 \\ \times 4 \\ \hline \$62.88 \end{array}$$

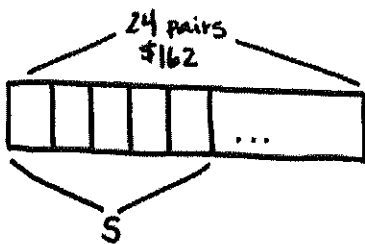
$$\begin{array}{r} \$21.87 \\ \times 3 \\ \hline \$65.61 \end{array}$$

$$\begin{array}{r} \$62.88 \\ + \$65.61 \\ \hline \$128.49 \end{array}$$

$$P = \$118.49$$

Tim spends \$118.49 on paint.

4. A soccer coach spent \$162 dollars on 24 pairs of socks for his players. How much did five pairs of socks cost? (G5 M2 L27)



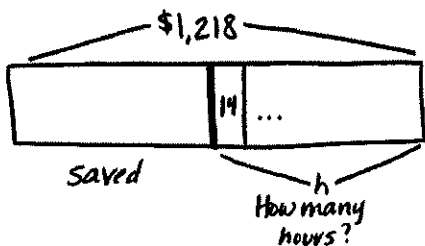
$$\begin{array}{r} \$ 6.75 \\ 24 \overline{) \$162.00} \\ \underline{-144} \\ 180 \\ \underline{-168} \\ 120 \\ \underline{-120} \\ 0 \end{array}$$

$$\begin{array}{r} \$6.75 \\ \times 5 \\ \hline \$33.75 \end{array}$$

Five pairs of socks cost \$33.75.

$S = \$33.75$

5. Ava is saving for a new computer that costs \$1,218. She has already saved half of the money. Ava earns \$14.00 per hour. How many hours must Ava work in order to save the rest of the money? (G5 M2 L28)



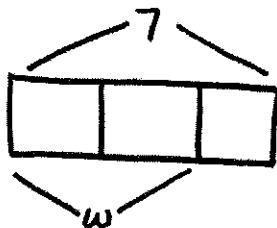
$$\begin{array}{r} \$ 609 \\ 2 \overline{) \$1218} \\ \underline{-12} \\ 01 \\ \underline{-0} \\ 18 \\ \underline{-18} \\ 0 \end{array}$$

$$\begin{array}{r} 43.5 \\ 14 \overline{) 609.0} \\ \underline{-56} \\ 49 \\ \underline{-42} \\ 70 \\ \underline{-70} \\ 0 \end{array}$$

$h = 43.5$

Ava must work 43.5 hours to save the rest of the money.

6. Baa Baa, the black sheep, had 7 pounds of wool. If he separated the wool equally into 3 bags, how much wool would be in 2 bags? (G5 M4 L4)

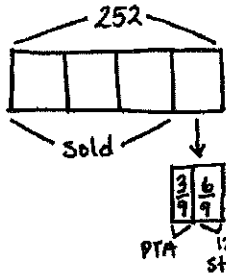


$$\begin{aligned} 3 \text{ units} &= 7 \\ 1 \text{ unit} &= 7 \div 3 = \frac{7}{3} \\ 2 \text{ units} &= 2 \times \frac{7}{3} = \frac{14}{3} \end{aligned}$$

$$W = \frac{14}{3} = 4\frac{2}{3}$$

$4\frac{2}{3}$ pounds wool are in 2 bags.

7. Mr. Chan made 252 cookies for the Annual Fifth Grade Class Bake Sale. They sold $\frac{3}{4}$ of them, and $\frac{3}{9}$ of the remaining cookies were given to P.T.A. members. Mr. Chan allowed the 12 student helpers to divide the cookies that were left equally. How many cookies will each student get? (G5 M4 L11)



$$\frac{1}{4} \text{ of } 252 = \frac{252}{4}$$

$$= 63$$

$$4 \text{ units} = 252$$

$$1 \text{ unit} = 252 \div 4$$

$$= 63$$

Each student gets $3\frac{1}{2}$ cookies.

$$\frac{6}{9} \text{ of } 63 = \frac{6 \times 63}{9}$$

$$= \frac{378}{9}$$

$$= 42$$

$$9 \text{ units} = 63$$

$$1 \text{ unit} = 63 \div 9$$

$$= 7$$

$$6 \text{ units} = 6 \times 7$$

$$= 42$$

$$\frac{1}{12} \text{ of } 42 = \frac{42}{12}$$

$$= 3\frac{6}{12}$$

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

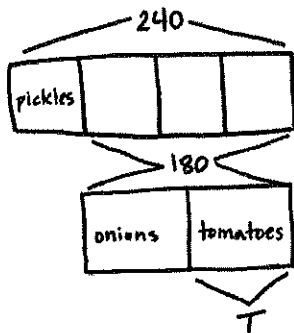
$$12 \text{ units} = 42$$

$$1 \text{ unit} = 42 \div 12$$

$$= \frac{42}{12}$$

$$= 3\frac{6}{12} = 3\frac{1}{2}$$

8. The Booster Club sells 240 cheeseburgers. $\frac{1}{4}$ of the cheeseburgers had pickles, $\frac{1}{2}$ of the remaining burgers had onions, and the rest had tomato. How many cheeseburgers had tomato? (G5 M4 L16)



$$4 \text{ units} = 240$$

$$1 \text{ unit} = \frac{240}{4} = 60$$

$$\frac{1}{2} \times \frac{3}{4} = \frac{3}{8}$$

$$3 \text{ units} = 180$$

$$\frac{3}{8} \times 240 = \frac{3 \times 240}{8}$$

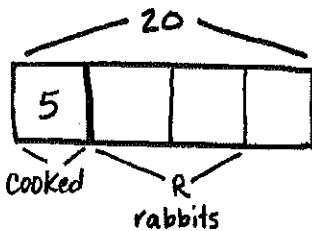
$$180 \div 2 = 90$$

$$= 90$$

$$T = 90$$

90 cheeseburgers had tomatoes.

9. Farmer Green picked 20 carrots. He cooked 5 of them and then gave $\frac{2}{3}$ of the remaining carrots to his rabbits. How many carrots did the rabbits get? (G5 M4 L32)



$$20 - 5 = 15$$

The rabbits got 10 carrots.

$$\frac{2}{3} \text{ of } 15 = 10$$

$$R = 10$$

10. Ava is 23 cm taller than Olivia, and Olivia is half the height of Lucas. If Lucas is 1.78 m tall, how tall are Ava and Olivia? Express their heights in centimeters. (G5 M1 L16)



$$178 \div 2 = 89$$

Olivia is 89 cm tall.

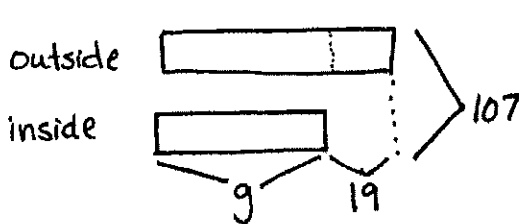


$$89 + 23 = 112$$

Ava is 112 cm or 1.12 m tall.



11. Jay needs 19 quarts more paint for the outside of his barn than for the inside. If he uses 107 quarts in all, how many gallons of paint will be used to paint the inside of the barn? (G5 M2 L15)



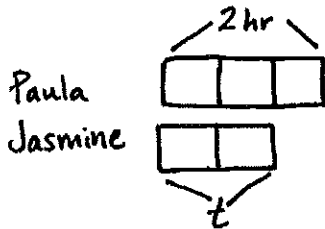
$$\begin{array}{r} 107 \\ - 19 \\ \hline 88 \end{array}$$

$$88 \div 2 = 44$$

$$\begin{aligned} 44 \text{ qt} &= 44 \times (1 \text{ qt}) \\ &= 44 \times \left(\frac{1}{4} \text{ gal}\right) \\ &= \frac{44}{4} \text{ gal} \\ &= 11 \text{ gal} \\ g &= 11 \text{ gal} \end{aligned}$$

11 gallons of paint are used to paint the inside of the barn.

12. Jasmine took $\frac{2}{3}$ as much time to take a math test as Paula. If Paula took 2 hours to take the test, how long did it take Jasmine to take the test? Express your answer in minutes. (G5 M4 L23)



$$\frac{2}{3} \times 2 \text{ hr} = \frac{4}{3} \text{ hr}$$

$$\begin{aligned} \frac{4}{3} \text{ hr} &= \frac{4}{3} \times (1 \text{ hr}) \\ &= \frac{4}{3} \times (60 \text{ min}) \end{aligned}$$

Jasmine finished the test in 80 minutes.

$$= \frac{240}{3} \text{ min}$$

$$= 80 \text{ min}$$

$$t = 80 \text{ min}$$

