

2. (Re PT4A pp42-49)

a. Re problem #9, p45, parts a, b, c, f, i, j — ADD:

#9a.  $\frac{1}{2} + \frac{1}{8} = \frac{5}{8}$     #9b.  $\frac{1}{4} + \frac{2}{12} = \frac{5}{12}$     #9c.  $\frac{2}{3} + \frac{1}{9} = \frac{7}{9}$

#9f.  $\frac{2}{3} + \frac{1}{12} = \frac{9}{12} = \frac{3}{4}$     #9i.  $\frac{3}{4} + \frac{1}{12} = \frac{10}{12} = \frac{5}{6}$     #9j.  $\frac{1}{4} + \frac{1}{9} + \frac{3}{8} = \frac{6}{8} = \frac{3}{4}$

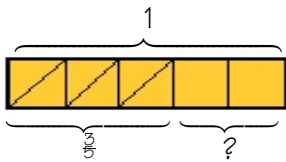
b. Re problem #10, p49, parts a, b, c, f, i, j — SUBTRACT:

#10a.  $\frac{5}{9} - \frac{1}{3} = \frac{2}{9}$     #10b.  $\frac{3}{4} - \frac{3}{8} = \frac{3}{8}$     #10c.  $\frac{4}{5} - \frac{7}{10} = \frac{1}{10}$

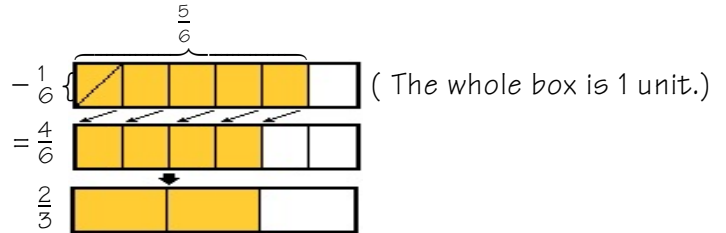
#10f.  $\frac{7}{10} - \frac{1}{5} = \frac{5}{10} = \frac{1}{2}$     #10i.  $\frac{5}{6} - \frac{7}{12} = \frac{3}{12} = \frac{1}{4}$     #10j.  $1 - \frac{1}{2} - \frac{1}{4} = \frac{1}{4}$

c. Re problems #4ab & 5ab p50. Create bar diagrams similar to those on pp42-49.

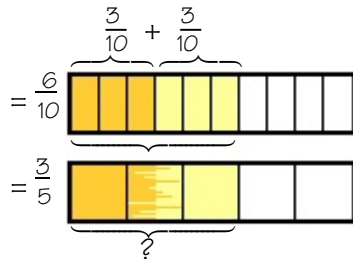
#4a.  $1 - \frac{3}{5} = \frac{2}{5}$



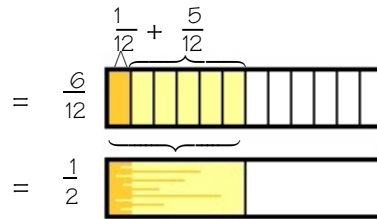
#4b.  $\frac{5}{6} - \frac{1}{6} = \frac{4}{6} = \frac{2}{3}$



#5a.  $\frac{3}{10} + \frac{3}{10} = \frac{6}{10} = \frac{3}{5}$

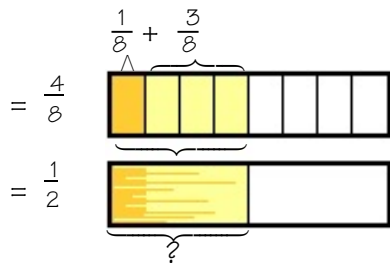


#5b.  $\frac{1}{12} + \frac{5}{12} = \frac{6}{12} = \frac{1}{2}$



3. (Re PT4A p50, problems #6-9): Give “Teacher’s Solutions” & specify what type of subtraction.

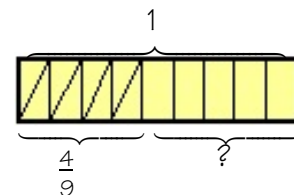
#6. Sally ate one-eighth; sister ate three-eighths of the cake. What fraction was eaten altogether?



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

Altogether they ate one half ( $\frac{1}{2}$ ) of the cake!

#7 Muthu spent four-ninths of his money, saved the rest. What fraction did he save? This can be viewed either as Part-Whole or as Take-away Subtraction.

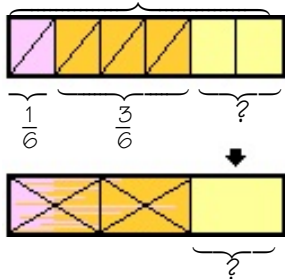


$1 - \frac{4}{9} = \frac{5}{9}$

Muthu saved five ninths ( $\frac{5}{9}$ ) of his money.

## 3. Continued [ #8 is similar to another problem. ]

#9. Fatimah ate one-sixth of the pie, gave three-sixths away. What fraction was left?



This is Take-away Subtraction.

$$1 - \left( \frac{1}{6} + \frac{3}{6} \right) =$$

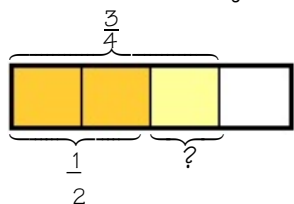
$$\frac{6}{6} - \frac{4}{6} = \frac{2}{6} = \frac{1}{3}$$

One-third ( $\frac{1}{3}$ ) of the pie was left.

(Re PT4A p51, problems #6-8):

#6. Mary has  $\frac{3}{4}$  liter of orange juice; she drinks  $\frac{1}{2}$  liter of it. How much has she left?

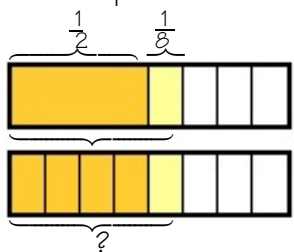
This is Take-away subtraction.



$$\frac{3}{4} - \frac{1}{2} = \frac{3}{4} - \frac{2}{4} = \frac{1}{4}$$

Mary has one-fourth ( $\frac{1}{4}$ ) liter of orange juice left.

#7. Mr J bought a can of paint. He used half of it to paint a table, one-eighth on a bookshelf. How much paint did he use altogether? [This problem is similar to some above problems.]



$$\frac{1}{2} + \frac{1}{8} = \frac{4}{8} + \frac{1}{8} = \frac{5}{8}$$

Mr. Johnson used five-eighths of a can of paint altogether.

#8. Meredith bought two-fifths kg of shrimp. Courtney bought one-tenth kg less.

(a) Find the mass of shrimp bought by C. (b) Find total mass of shrimp they purchased.

Note— This is not a “teacher’s solution”.

Call it “Backwards comparison subtraction” because they give the difference between two quantities... then ask for one of them.

Regardless of the type of subtraction problem, we end up with the subtraction:

$$\frac{2}{5} - \frac{1}{10} = \frac{4}{10} - \frac{1}{10} = \frac{3}{10}$$

The total mass of shrimp purchased is two-fifths plus three-tenths kg =  $\frac{7}{10}$  kg total.

## 4. (Re PT4A. Review B pp 66-69 #12-16 )

## 4a. (Answer Problems #12-16):

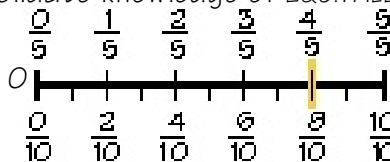
#12: fraction shaded is...  $\frac{5}{8}, \frac{1}{3}, \frac{1}{6}, \frac{1}{2}, \frac{3}{4}, \frac{1}{2}$ #13: fraction shaded is...  $\frac{4}{9}, \frac{2}{3}$ #14: in increasing order...  $\frac{1}{12} < \frac{1}{3} < \frac{3}{5} < \frac{4}{4} < \frac{3}{2}$ 

#15: missing part... 6, 18, 2, 3

#16 in simplest form...  $\frac{8}{10} = \frac{4}{5}, \frac{2}{12} = \frac{1}{6}, 1\frac{2}{6} = \frac{4}{3}, 2\frac{3}{12} = \frac{9}{4}$

4b. The above problems are intended to evaluate and consolidate knowledge of EQUIVALENT FRACTIONS.

5. A “teacher’s explanation” for :  $\frac{4}{5} = \frac{8}{10}$



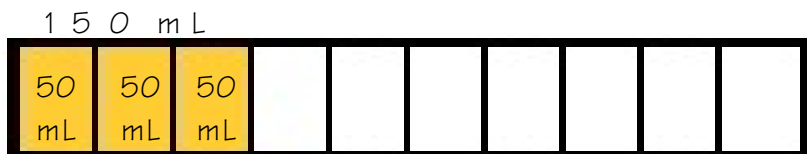
These two fractions represent the same position

on the number line. When the interval between 0 and 1 is divided into 5 equal parts, taking 4 of those is the same as... taking 8 parts, after the interval has been divided into 10 equal parts.

$\frac{4}{5}$  of the way from 0 to 1 is the same as  $\frac{8}{10}$  of the way from 0 to 1.

6. Give Teacher’s Solutions to the following problems using a diagram based on the model:

6a. MS used  $\frac{3}{10}$  of a bottle of cooking oil; that measured 150 mL. How much did the whole bottle hold?



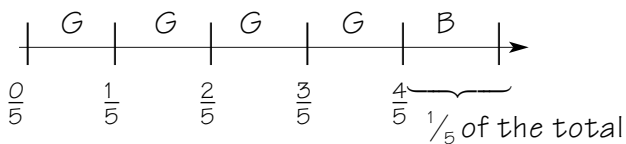
Area Model

$$\frac{3}{10} = 150 \text{ mL} \quad \text{so} \quad \frac{1}{10} = 50 \text{ mL}$$

$$\text{Then } \frac{10}{10} = 10 \times 50 \text{ mL} = 500 \text{ mL}$$

The whole bottle held 500 mL.

6b. Four-fifths of the choir are girls. If 8 boys in choir, how many altogether? Use measurement model.



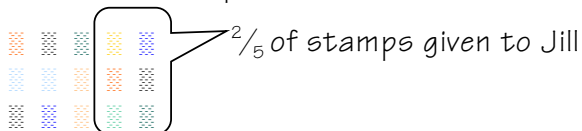
Since Girls make up 4 fifths of the total, the Boys comprise  $(1 - \frac{4}{5})$  or  $\frac{1}{5}$  of the total. Think of  $\frac{1}{5}$  of the total as a “unit”.

The Boys form one unit. So one unit = 8 members.

The choir is made up of five units.  $5 \cdot 8 = 40$ .

The choir is made up of 40 members.

6c. Jim had 15 stamps. He gave two-fifths of them to Jill. How many stamps did he give to Jill?



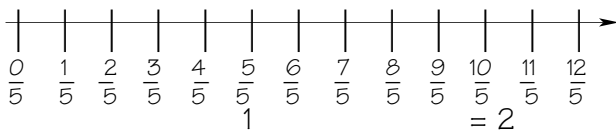
Two parts of five parts went to Jill.

One part = 3 stamps.

Two parts =  $2 \cdot 3$  stamps = 6 stamps.

Jim gave Jill 6 stamps.

6d. Beth made 12 bows. She used  $\frac{1}{5}$  meter of ribbon for each bow. How much ribbon did she use?



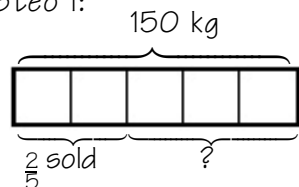
One unit = one fifth meter.

12 units = 12 fifths meter =  $2 \frac{2}{5}$  m.

Beth used  $2 \frac{2}{5}$  m of ribbon.

6e. A shopkeeper had 150kg of rice. He sold  $\frac{2}{5}$  of it, and packed the remainder equally into 5 bags. Find the weight of rice in each bag.

Step 1:



$$1 - \frac{2}{5} = \frac{3}{5}$$

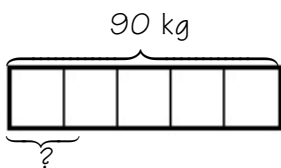
$$\frac{3}{5} \cdot 150 \text{ kg} = 90 \text{ kg}$$

OR: 5 parts = 150 kg

2 part = 30 kg

3 parts = 90 kg

Step 2:



$$90 \text{ kg} \div 5 = 18 \text{ kg.}$$

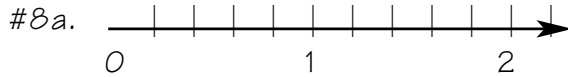
Each bag should contain 18kg.

[#6f & #7 not shown]

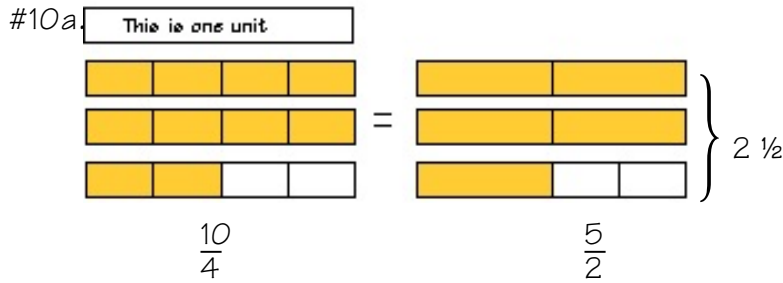
1. (Re PT 4A, pp 52-57)

1a. Illustrate Problems #8a and #8b (p 57) using a number line. [#8b not shown]

$$\frac{1}{5} \frac{2}{5} \frac{3}{5} \frac{4}{5} \frac{5}{5} \frac{6}{5} \frac{7}{5} \frac{8}{5} \frac{9}{5} \frac{10}{5}$$



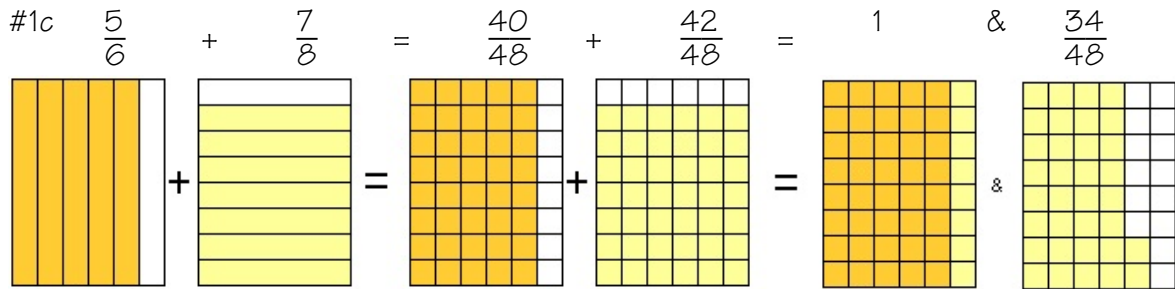
1b. Illustrate problems #10a and #10b (p 57) using an area model. Start with one unit. [#10b not shown]



3. (Re PT 5A pp 37-43)

3a. Illustrate problems 1c, [2c, and 3c] of Practice 3B using pictures similar to example 2.4

Solutions for 2c & 3c are NOT shown



Yes, the **least common denominator** of 6 and 8 is 24, not 48. However, the point of these illustrations is that we *cannot* intuitively add most fractions without a common denominator, and we *can* add any two fractions by restating them as equivalent fractions with a common denominator, and that is *always* possible... leading to the definition of addition of fractions:

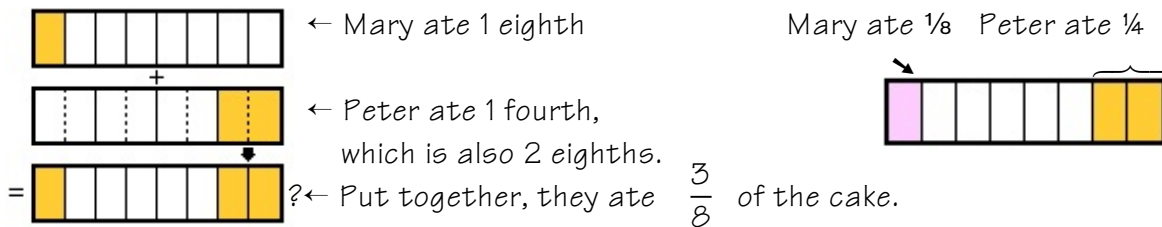
$$\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$$

This “formula” tells us how to add any two fractions, regardless of the particular numbers involved.

3b. Give a Teacher’s Solution to Problems 7 and 8 of Practice 3B (p 40).

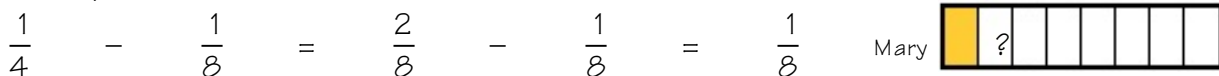
#7 Mary ate  $\frac{1}{8}$  of a cake. Peter ate another  $\frac{1}{4}$  of it.

#7a What fraction of the cake did they eat altogether?



Notice both of the above diagrams assume a little more sophisticated view of addition, that is, they both use the least common denominator and assume the student will see the compatibility of the denominators 8 and 4.

#7b What part of the cake did Peter eat more than Mary?



3b continued

#8 Ali spent  $\frac{3}{5}$  of his money on books and  $\frac{1}{4}$  of it on a pen.

#8a What fraction of his money did he spend?



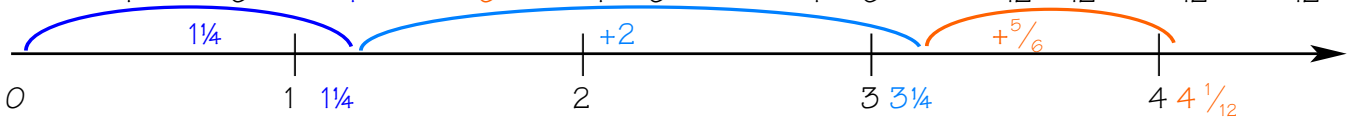
$$\text{Spent } \frac{3}{5} + \frac{1}{4} = \frac{12}{20} + \frac{5}{20} = \frac{17}{20}$$

He spent 17 twentieths of his money.

#8b What fraction of his money had he left? The unspent part of the picture:  $\frac{3}{20}$ 

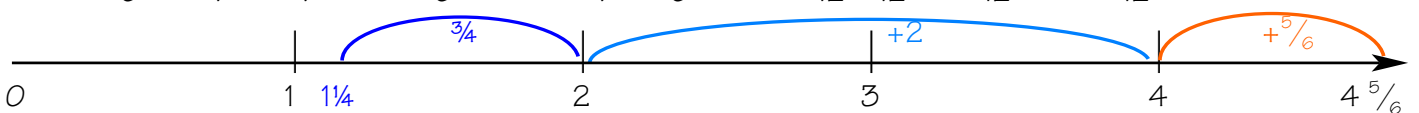
3c. Illustrate problems 1c, 2c, &amp; 3c of Practice 3C (p43) in the manner of Ex. 2.7.

$$\#1c \quad 1\frac{1}{4} + 2\frac{5}{6} = (1\frac{1}{4} + 2) + \frac{5}{6} = 3\frac{1}{4} + \frac{5}{6} = 3 + (\frac{1}{4} + \frac{5}{6}) = 3 + (\frac{3}{12} + \frac{10}{12}) = 3\frac{13}{12} = 4\frac{1}{12}$$



Unsolicited comment: This is not nearly as satisfying as "counting up" in subtraction problems.

$$\#2c \quad 4\frac{5}{6} - 1\frac{1}{4} = \frac{3}{4} + 2 + \frac{5}{6} = 2 + \frac{3}{4} + \frac{5}{6} = 2 + \frac{9}{12} + \frac{10}{12} = 2\frac{19}{12} = 3\frac{7}{12}$$



4. Mental Math (Show your intermediate steps):

[4b, 4d, 4e not shown]

$$4a. \quad 28\frac{2}{7} - 3\frac{6}{7} = 28\frac{3}{7} - 4 = 24\frac{3}{7}$$

$$4c. \quad (1\frac{3}{4} + 4\frac{5}{11}) + (2\frac{8}{11} + 5\frac{1}{4}) = (1 + 4 + 2 + 5) + \frac{3}{4} + \frac{1}{4} + \frac{5}{11} + \frac{8}{11} = 12 + 1 + \frac{13}{11} = 13 + 1 + \frac{2}{11} = 14\frac{2}{11}$$

7. Use long division to convert to mixed numbers:

[7b not shown]

$$7a. \quad \begin{array}{r} 19 \\ 37 \overline{) 735} \\ \underline{37} \\ 365 \\ \underline{333} \\ 32 \end{array} \quad \frac{735}{37} = 19\frac{32}{37}$$

8. A student claims  $\frac{46}{6}$  can't be the same as  $\frac{23}{3}$  because  $46 \div 6$  is 7 R3, while  $23 \div 3$  is 7 R2.

Answer:

The remainders must be compared to the divisors.

$$46 \div 6 = \frac{46}{6} = 7\frac{4}{6} \quad 23 \div 3 = \frac{23}{3} = 7\frac{2}{3}$$

Just as you cannot judge the size of a fraction by its numerator or denominator alone, you cannot judge a fraction by the remainder that results when the division is performed. You can also illustrate this or use an example with simpler numbers. EG  $\frac{4}{3}$  versus  $\frac{8}{6}$  (remainders are 1 and 2).

1. Mental Math. Since  $25 = \frac{100}{4}$ , we can easily multiply:

1a.  $25 \times 64 = \frac{100}{4} \times 64 = 100 \times \frac{64}{4} = 100 \times 16 = 1600$

1d.  $3212 \times 25 = 3212 \times \frac{100}{4} = 80300$

2. Mental Math. Show your **thinking**; use arithmetic properties... [#2d not shown]

2a.  $44 \cdot \frac{3}{8} + 44 \cdot \frac{7}{8} = 44 \cdot \left( \frac{3}{8} + \frac{7}{8} \right) = 44 \cdot \frac{10}{8} = 44 \left( 1 + \frac{1}{4} \right) = 44 + 11 = 55$

2b.  $\left( \frac{4}{7} + \frac{7}{9} \right) - \frac{3}{7} = \frac{4}{7} - \frac{3}{7} + \frac{7}{9} = \frac{1}{7} + \frac{7}{9} = \frac{9 + 49}{63} = \frac{58}{63}$  Note: almost certainly the author meant  $+\frac{3}{7}$ , not  $-\frac{3}{7}$ .

2c.  $48 \times 99\frac{5}{12} = 48 \left( 100 - \frac{7}{12} \right) = 4800 - \frac{48 \cdot 7}{12} = 4800 - 28 = 4772$

3. Estimate to the nearest whole number:

a.  $59 \times \frac{1}{3} \approx 60 \times \frac{1}{3} = 20$  ...this answer is off by only a third of a unit.

b.  $24\frac{1}{4} \times 1\frac{2}{3} \approx 24 \times 1\frac{2}{3} = 24 \cdot 1 + 24 \cdot \frac{2}{3} = 24 + 16 = 40$

...off by  $\frac{1}{4} \times 1\frac{2}{3}$ , which is less than  $\frac{1}{4} \times 2$

4. (Re PT 5A pp 44-45, 48)

4a. (p48, #2)  $24 \cdot \frac{80}{3} \cdot \frac{25}{3}$  (p48, #3) 49 52 45

4b. Use Method 3 to find:  $48 \times \frac{23}{12} = 48 \times \frac{23}{12} = 4 \cdot 23 = 92$

$320 \times \frac{13}{80} = 320 \times \frac{13}{80} = 4 \cdot 13 = 52$

5. (Re PT 5A, pp49-52 Practice 3E #5-10 no diagrams necessary)

[#7 & #8 not shown]

#5a.  $\frac{20}{7} \cdot \frac{7}{4} = 5$

#5b. 4

#5c. 5

#6.  $\frac{1}{3}$  of  $\frac{1}{2}$  m =  $\frac{1}{6}$  m

#9. She gave away  $\frac{1}{5}$  of  $\left( 1 - \frac{1}{6} \right) = \frac{1}{5} \cdot \frac{5}{6} = \frac{1}{6}$  of the cake.

#10. The area of a rectangle which measures  $\frac{5}{8}$  m by  $\frac{3}{5}$  m =  $\frac{5}{8} \cdot \frac{3}{5} \text{ m}^2 = \frac{3}{8} \text{ m}^2$

6. (Re PW 5A, p 57-59, Exercise 22 & 23)

6a. Illustrate the solution to Exercise 22, #2a, 2b)

[#2b of Exercise 22 is not shown.]

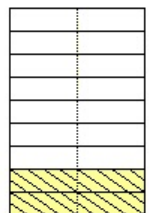
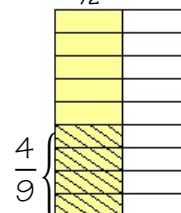
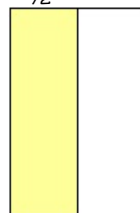
#2a.  $\frac{4}{9} \times \frac{1}{2} = \frac{4 \cdot 1}{9 \cdot 2} = \frac{4}{18} = \frac{2}{9}$

$\frac{1}{2}$

$\frac{4}{9}$  of  $\frac{1}{2}$

$\frac{1}{2}$

$\frac{1}{2}$



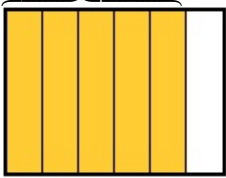
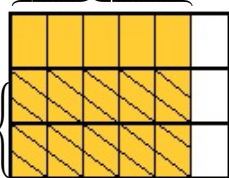
=  $\frac{4}{18}$

=  $\frac{2}{9}$

The middle illustration is the critical one.

6b. Give Teacher's Solutions to Problems 2, 3 and 4 of Exercise 23 (PW 5A p 59).

#2 Mrs. Smith bought  $\frac{5}{6}$  lb of meat. She cooked  $\frac{2}{3}$  of it. How much meat did she cook?

First show:  Then take  $\frac{2}{3}$  of that: 

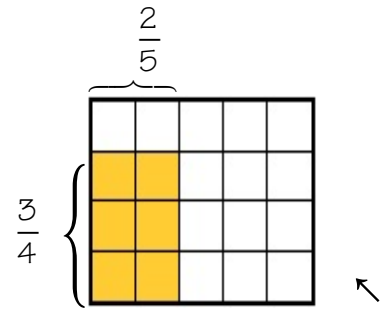
Mrs. Smith cooked  $\frac{5}{9}$  lb of meat.  $\frac{2}{3} \times \frac{5}{6} = \frac{10}{18} = \frac{5}{9}$

#3 A rectangle measures  $\frac{3}{4}$  yd by  $\frac{2}{5}$  yd. Find its area.

A  $\frac{3}{4}$  yd by  $\frac{2}{5}$  yd rectangle occupies

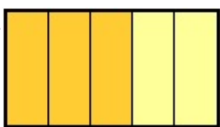
$\frac{3}{4}$  of  $\frac{2}{5}$  of a square yard


$$\frac{3}{4} \cdot \frac{2}{5} = \frac{6}{20} = \frac{3}{10}$$



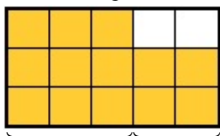
The area is  $6/20$ , or  $3/10$ , of a square yard.

#4 Susan spent  $\frac{3}{5}$  of her money on a calculator, and  $\frac{2}{3}$  of the remainder on a pen. What fraction of her money had she left?

Susan spent  $\frac{3}{5}$  of her money  which left just  $\frac{2}{5}$

She spent  $\frac{2}{3}$  of  ← the  $\frac{2}{5}$  remainder  $\frac{2}{3}$  of  $\frac{2}{5} = \frac{4}{15}$

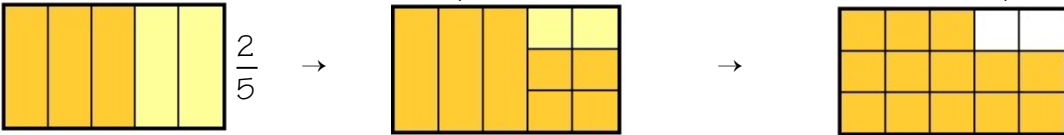
So altogether she spent:



$$\frac{3}{5} + \frac{4}{15} = \frac{13}{15}$$

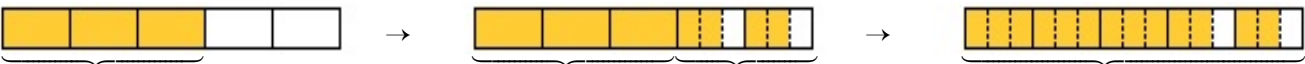
Susan had  $1 - \frac{13}{15} = \frac{2}{15}$  of her money left.

This can be done with one diagram, but the progression is shown here to make the presentation clear:



Spent Left  $\frac{2}{3}$  of  $\frac{2}{5}$  spent Spent  $\frac{9}{15} + \frac{4}{15} = \frac{13}{15}$  ←?

Another style of presentation:



$\frac{3}{5}$   $\frac{3}{5}$   $\frac{2}{3}$  of  $\frac{2}{5}$   $\frac{13}{15}$

In each case, the presentation must be completed with the statement:

Susan had  $1 - \frac{13}{15} = \frac{2}{15}$  of her money left.

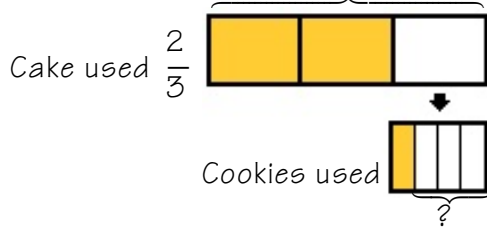
10. (Re PT 5A p56-59 & PW 5A pp68-71)

Give Teacher's Solutions for Exercises 28 & 29 (in PW 5A)

Exercise 28:

#1. Tracy bought 120 eggs. She used  $\frac{2}{3}$  of them for cakes,  $\frac{1}{4}$  of the remainder for cookies. How many had she left? 120

#3 & #4 not shown



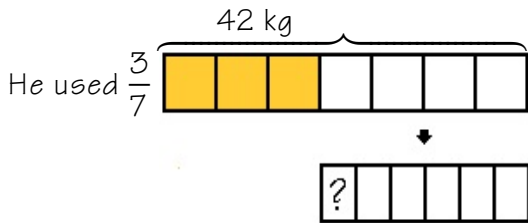
$2/3$  used  $\Rightarrow 1/3$  left.  $1/3$  of 120 = 40

She used  $1/4$  of the remainder (40) for cookies.  $1/4$  of 40 = 10.  $3/4$  of 40 = 30 eggs are left.

Comment: She used  $2/3$  and  $1/4$  of  $1/3$ , so  $3/4$  of  $1/3$  of 120 eggs are left.

Tracy had 30 eggs left.

#4 Sam packed 42 kg of rice into one Big and 6 Small, equal bags. Big bag got  $3/7$  of the rice. How many kg of rice in each Small bag?

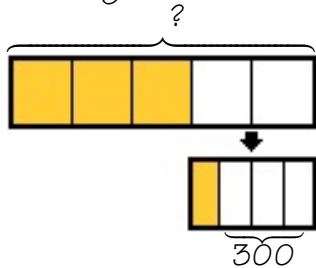


7 parts = 42 kg  
1 part = 6 kg  
4 parts = 24 kg  
24 kg  $\div$  6 = 4 kg

Each small bag has 4 kg of rice.

Exercise 29:

#1 Lindsey sold  $\frac{3}{5}$  of her tarts in the AM,  $\frac{1}{4}$  of the rest in the PM. She had 300 left. How many?

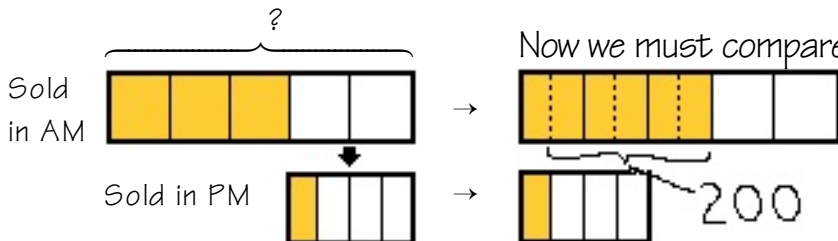


If 3 little parts = 300,  
1 little part = 100,  
& 4 little parts = 400

If 2 parts = 400  
Then 1 part = 200  
& 5 parts must be 1000.  
Lindsey had made 1000 tarts.

#2 Mrs K sold  $\frac{3}{5}$  of her tarts in the AM,  $\frac{1}{4}$  of the rest in the PM.

She sold 200 more in the AM than in the PM. How many had she made ?



If 5 little parts = 200  
Then 1 little part = 40  
& 10 little parts must be 400.

Mrs K had made 400 tarts.

#3 and #4 are not shown.

11. Keep in mind we have TWO tests. Try them both on each problem!

- (1) Do we know how many parts we want? (Partitive) or do we know the size of the parts? (Measure)
- (2) When we divide, do the units match? No  $\rightarrow$  Partitive Yes  $\rightarrow$  Measure.

11a. MD      11b. MD      11c. PD      11d. PD      11e. MD      11f. PD

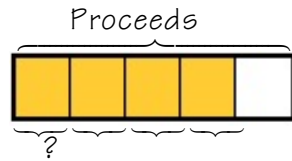


1. (Re PT 5A pp 53-55) Give Teacher's Solutions to Practice 3F, Problems 4-9

Teacher's Solutions not shown for #4, 6, 7, 8, 9

#4  $2/5$  m

- #5 (Rephrased)  $\frac{4}{5}$  of the money collected at a garage sale was divided equally among 4 clubs. What fraction of the [garage sale proceeds] did each club receive?



$$\frac{4}{5} \div 4 = \frac{1}{5} \quad \text{Each club received } \frac{1}{5} \text{ of the sale proceeds.}$$

#6  $1/20$  kg

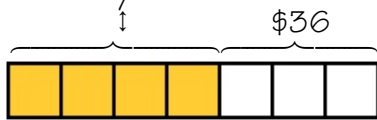
#7  $1/10$  pt

#8  $3/16$  m

#9  $1/8$  kg

3. Give a Teacher's Solution using bar diagram:

- 3a. After spending  $\frac{4}{7}$  of her money on a jacket, Rita had \$36 left. How much money did she have at first?



$$3 \text{ parts} = \$36$$

$$36 \div 3 = 12$$

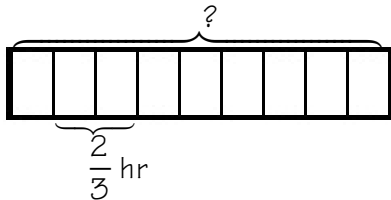
$$1 \text{ part} = \$12$$

$$7 \cdot 12 = 84$$

$$7 \text{ parts} = \$84$$

$$\text{Rita had } \$84 \text{ at first.}$$

- 3b. While filling her backyard pool, Anita watched level rise from  $\frac{1}{9}$  full to  $\frac{1}{3}$  full in  $\frac{2}{3}$  hr. Find time to fill it.



$$2 \text{ parts} = \frac{2}{3} \text{ hr}$$

$$1 \text{ part} = \frac{1}{3} \text{ hr}$$

$$\text{The whole} = 9 \text{ parts} = 9 \cdot \frac{1}{3} \text{ hr} = 3 \text{ hr}$$

The pool will fill in 3 hours.

4. Give a Teacher's Solution using scaling:

- 4a. After reading 186 pages, Jennifer had read  $\frac{3}{5}$  of her book. How many pages has the book?

$$186 \text{ pages} = \frac{3}{5} \text{ of the book}$$

$$62 \text{ pages} = \frac{1}{5} \text{ of the book}$$

$$310 \text{ pages} = \frac{5}{5} \text{ of the book}$$

Divide by 3

Multiply by 5

The book has 310 pages.

- 4b. A dump truck contains  $\frac{2}{3}$  of a ton of dirt, but is only  $\frac{3}{10}$  full. How many tons of dirt can the truck hold?

$$\frac{2}{3} \text{ of a ton} = \frac{3}{10} \text{ of a truck-full}$$

$$\frac{2}{9} \text{ of a ton} = \frac{1}{10} \text{ of a truck-full}$$

$$\frac{20}{9} \text{ of a ton} = \frac{10}{10} \text{ of a truck-full}$$

Divide by 3

Multiply by 10

The truck can hold  $\frac{20}{9}$ , or  $2 \frac{2}{9}$ , tons of dirt.

5. Give a Teacher's Solution using algebra:

5a.  $\frac{3}{7}$  of the coins in a box are nickels; the rest, pennies. If there are 36 pennies, how many coins total?

$$(1 - \frac{3}{7})x = 36 \text{ or } \frac{4}{7}x = 36$$

$$4x = 7 \cdot 36$$

$$x = 7 \cdot 9$$

Multiply both sides by 7  
Divide both sides by 4 } or just multiply by  $\frac{7}{4}$

The box contains 63 coins [ 36 pennies, and 27 nickels].

5b. A farmer took  $\frac{3}{4}$  hr to plow  $\frac{2}{5}$  of his corn field. How many hours needed to plow the whole field?

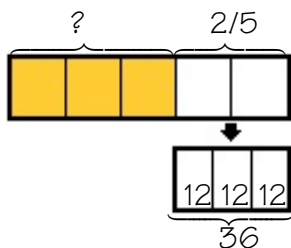
We know doing  $\frac{2}{5}$  of the whole field took  $\frac{3}{4}$  hours. So  $\frac{3}{4}$  hrs =  $\frac{2}{5}$  of (time for the whole job)

$$\frac{2}{5}T = \frac{3}{4} [\text{hr}]$$

$$T = \frac{5}{2} \cdot \frac{3}{4} [\text{hr}] = \frac{15}{8} [\text{hr}] \text{ The whole field will take } \frac{15}{8}, \text{ or } 1\frac{7}{8} \text{ hours}$$

6. Give a Teacher's Solution to each of the following problems.

6a. Michelle spent  $\frac{3}{5}$  of her \$ on a backpack. With the rest she got 3 CDs at \$12 ea. Backpack cost \_\_\_?



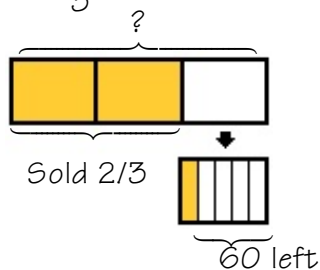
2 parts = \$36

1 part = \$18

3 parts = \$54

The backpack cost \$54.

6b. Whitney sold  $\frac{2}{3}$  of her cookies & gave away  $\frac{1}{5}$  of the rest. 60 cookies were left. How many to start?



4 little parts = 60 cookies

1 little part = 15 cookies

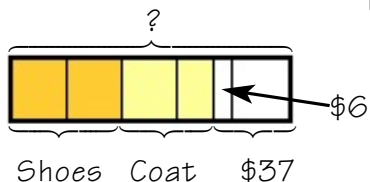
5 little parts = 75 cookies

1 third part = 75 cookies

3 thirds = 3 · 75 cookies = 225 cookies

Whitney had 225 cookies to start.

6c. Tony spent  $\frac{2}{5}$  of his money on running shoes. He also bought a coat, which cost \$6 less than the shoes. He then had \$37 left. How much had he at first?



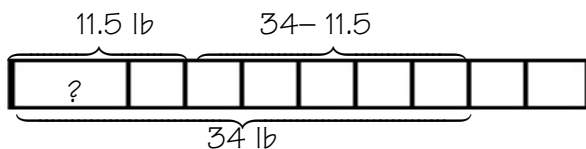
1 part = \$37 - \$6 ( \$6 of that \$37 belongs to the 4<sup>th</sup> fifth.)

5 parts = 5 · \$31 = \$155

Tony had \$155 to start

6d. Fish tank weighs 11.5 lbs when  $\frac{1}{8}$  full, 34 lbs when  $\frac{3}{4}$  full. What is weight of empty tank?

Total = tank + water



5 parts water = 22.5 lb

1 part water =

Tank = 11.5 -

The empty tank weighs 7 lb.