

## 6.1.4 How does it make sense?



### Solving Problems Involving Fraction Division

**6-47. DIVISION AND AREA:** The Ferndale High School Golden Eagles have a large playfield at their school that covers  $\frac{2}{3}$  of a square mile. One side of the playfield is  $\frac{1}{2}$  mile in width.

- Draw a diagram that shows this situation. Be sure to include labels.
- What operation can you do to find the length of the field? Write a number sentence for this operation.
- Find the length of the playing field. What strategy did you use?

### 6-48. TEAM DIVISION

For each of the division problems below, work with your team to:

- Draw a diagram that represents the problem and your question.
- Find the solution and explain what it means.

a)  $\frac{3}{4} \div \frac{1}{2}$

b)  $\frac{1}{2} \div \frac{3}{4}$

*Helpful Hint: Remember that you can read the division problems as "how many are there?" For example, part A can be read "how many  $\frac{1}{2}$  pieces are in  $\frac{3}{4}$ ?"*

Now that you've learned a lot of different strategies for division, let's practice.

**6-31** Solve using any strategy, but remember that diagrams are often very helpful!

- If a box holds 5 books, how many boxes or partial boxes would be filled by 14 books? Include a number sentence with your answer.
- How much does each person get if  $\frac{1}{2}$  pound of chocolate is shared equally between 3 people? Include a division number sentence with your answer.

c)  $5 \div 3$

d)  $5 \div \frac{1}{3}$

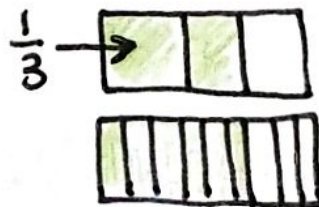
e)  $\frac{2}{3} \div \frac{1}{9} = 6$

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

$$1.\bar{6}$$

$$15$$

$$5 \times 3 = 15$$



12-47

a)  $\frac{2}{3} \text{ mi}^2 \times \frac{1}{2} \text{ mi}$   
 Length

b) You can divide to find the missing length.

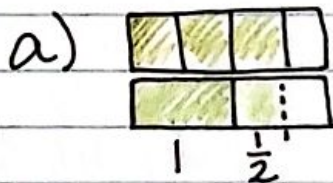
$$\frac{2}{3} \div \frac{1}{2} = \text{length}$$

c)  $\frac{2}{3} \div \frac{1}{2} \rightarrow \frac{2}{3} \times \frac{2}{1} = \frac{4}{3}$

★ We can re-write any division number sentence as multiplication if we flip the second fraction.

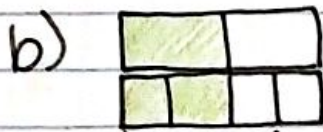
The length of the playing field is  $\frac{4}{3}$  mi or  $1\frac{1}{3}$  mile.

12-48



There are  $1\frac{1}{2}$  halves in  $\frac{3}{4}$ .

$$\frac{3}{4} \div \frac{1}{2} \rightarrow \frac{3}{4} \times \frac{2}{1} = \frac{6}{4} = 1\frac{2}{4} = 1\frac{1}{2}$$



2 out of 3 fit into  $\frac{1}{2}$

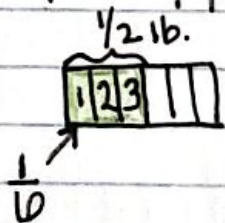
There are  $\frac{2}{3}$  three quarter groups in  $\frac{1}{2}$ .

$$\frac{1}{2} \div \frac{3}{4} \rightarrow \frac{1}{2} \times \frac{4}{3} = \frac{4}{6} = \frac{2}{3}$$

12-31

a)   
 $2\frac{4}{5}$  boxes.  
 $14 \div 5 = 2\frac{4}{5}$

b)  $\frac{1}{2} \div 3 = \frac{1}{6}$   
 Each person gets  $\frac{1}{6}$  pound.



c) } Front  
 d) }  
 e) }