11) $\{(0,0), (1,12), (2,24), (3,\underline{36})\}$ C

$+12 \quad +12 \quad \cdot \quad +12$

12)   Blue : Yellow : Red
      $\underset{\div 2}{12} : \underset{\div 2}{10} : \underset{\div 2}{4}$ Reduce Ratio   Ⓒ

      6 : 5 : 2

13) $1\frac{3}{4}$ cups of flour   and makes 24 cookies $\Big)\times 2$
      $\times 2$ 48 cookies

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

↓

Change Mixed fraction to Improper

$\frac{7}{4} \times \frac{2}{1}$

$\frac{14}{4}$ Ⓐ
↓ Take to mix

$3\frac{2}{4}$ Reduce

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

14) In Dec = 2800

     Jan = 150% of Dec
           ↓
           150% × 2800
           ↓ Change to decimal
           1.5 × 2800

           4200

15) $\dfrac{\text{\# fav}}{\text{total}} = \dfrac{750\,000}{33\,500\,000}$ $\nearrow^{\%}$

                          $\dfrac{75}{3350}$ Top ÷ Bott = dec $^{\times 100}$

                          $= 0.0223$
                          $\times 100$
                          $= 2.2\%$

16) 6 Juice cost 3.20 , what does 9 cost?

Find unit cost (Cost for 1 juice)

$3.20 ÷ 6

= $0.53 /juice

×9 $4.80 / 9 juice ×9

Ⓐ

17) $4n + 11 = 3$

$4n + \cancel{11} - 11 = 3 - 11$

$4n = -8$

$\dfrac{4n}{4} = \dfrac{-8}{4}$

$\boxed{n = -2}$

18) S.A cube = 96 cm²

6 faces all equal

S.A of 1 face = 96 cm² ÷ 6

= 16 cm²

Side = $\sqrt{Area}$

= $\sqrt{16}$

= 4

$V = A_{base} \times H$

L × W × H

4 × 4 × 4

16 × 4

64

20) $5 \times 4 + 6 \times \frac{1}{2}$ BEDMAS

20 + 6 × ½

20 + 3

23

Ⓑ
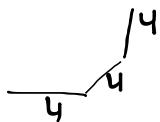
21) $3 + 1.25x = ^${10.50}$

Grade 8

Unit 3 Review: Operations with Fractions

Ex) $\dfrac{3}{1} \times \dfrac{2}{5} = \dfrac{6}{5}$

$\downarrow$

$1\dfrac{1}{5}$

➤ To multiply two fractions:
Multiply the numerators and multiply the denominators.
$$\dfrac{2}{3} \times \dfrac{1}{5} = \dfrac{2 \times 1}{3 \times 5} = \dfrac{2}{15}$$

➤ Two multiply two mixed numbers:
Write each number as an improper fraction, then multiply.
$$1\dfrac{1}{2} \times 2\dfrac{5}{6} = \dfrac{3}{2} \times \dfrac{17}{6} = \dfrac{17}{4} = 4\dfrac{1}{4}$$

Ex) $3\dfrac{1}{5} \times 2\dfrac{3}{8}$

write a simproper

$\dfrac{\cancel{16}^{2}}{5} \times \dfrac{19}{\cancel{8}1} = \dfrac{2 \times 19}{5 \times 1}$

$\dfrac{38}{5} = 7\dfrac{3}{5}$

➤ To divide two fractions:
Method 1: Use common denominators.
$$\dfrac{4}{5} \div \dfrac{3}{2} = \dfrac{4}{5} \times \dfrac{2}{3} = \dfrac{8}{15}$$

Flip and Mulitply

$\dfrac{4}{5} \div \dfrac{3}{2} \leftarrow$ flip

➤✗ Method 2: Use multiplication.
$$\dfrac{4}{5} \div \dfrac{3}{2} = \dfrac{8}{10} \div \dfrac{15}{10} = \dfrac{8}{15}$$

$\dfrac{4}{5} \times \dfrac{2}{3} = \dfrac{8}{15}$

➤ To divide two mixed numbers:
Write each number as an improper fraction, then divide.
$$3\dfrac{1}{2} \div 1\dfrac{2}{3} = \dfrac{7}{2} \div \dfrac{5}{3} = \dfrac{7}{2} \times \dfrac{3}{5} = \dfrac{21}{10} = 2\dfrac{1}{10}$$
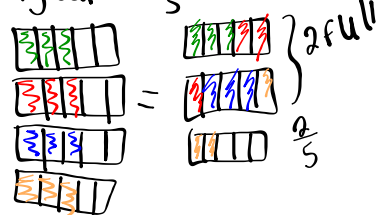
➤ When solving word problems:
- Think about the situation.
- Make sense of the problem.
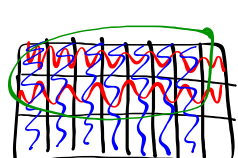- Think about what is happening in the problem. Use key words to help.

➤ The order of operations with whole numbers and decimals applies to fractions.
- Do the operations in brackets first.
- Then divide and multiply, in order, from left to right.
- Then add and subtract, in order form left to right.

BEDMAS

Complete the following questions below and textbook questions page 167 #16-21.

1. Use a model to multiply or divide.
   a. $4 \times \dfrac{3}{5} = 2\dfrac{2}{3}$ b. $\dfrac{2}{3} \times \dfrac{7}{8}$ c. $3 \div \dfrac{1}{2}$ d. $\dfrac{2}{5} \div \dfrac{3}{4}$

4 groups of $\dfrac{3}{5}$

2 full

$\dfrac{2}{5}$

$\dfrac{4}{1} \times \dfrac{3}{5} = \dfrac{12}{5} = 2\dfrac{2}{5}$

1b) $\dfrac{2}{3} \times \dfrac{7}{8} = \dfrac{14}{24}$

$= \dfrac{7}{12}$

$\dfrac{14}{24}$ Reduce $\dfrac{7}{12}$

2) $5\dfrac{1}{3} \div 1\dfrac{2}{3}$

$\downarrow$

$\dfrac{16}{3} \div \dfrac{5}{3}$

$\downarrow$ mul flip

$\dfrac{16}{3} \times \dfrac{3}{5}$

$\dfrac{16}{5}$

$= 3\dfrac{1}{5}$

Make 3 batches

2. Richard has $5\frac{1}{3}$ cups of flour. His cookie recipe requires $1\frac{2}{3}$ cups of flour to make one batch. What is the greatest number of full batches he will be able to bake?

3. A recipe uses $1\frac{1}{3}$ cups of flour to make 24 cookies. How much flour is needed to make 72 cookies?

4. A seamstress has a piece of fabric $\frac{6}{7}$ of a metre long. She cut it into 2 equal parts. How long is each part?
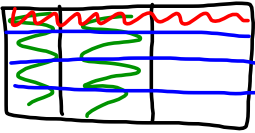
5) $2\frac{3}{4} \times 2\frac{1}{8}$

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

$$\frac{10}{3} \div \frac{5}{2}$$

$$\frac{10}{3} \times \frac{2}{5} = \frac{20}{15} \overset{Redu}{=} \frac{4}{3} = 1\frac{1}{3}$$

Multiplying Fractions

Box method

$\overset{L}{\dfrac{2}{3}} \times \overset{\overset{w}{\smile}}{\dfrac{1}{4}} = \dfrac{2}{12}$ ← overlap

cut → box

← Reduce

$\dfrac{1}{6}$

Numberline

$= 5\tfrac{1}{4}$

Ex2) $7 \times \dfrac{3}{4}$ ← how many dashes until limit

# of Jumps   Jump Size $\tfrac{3}{4}$

$\dfrac{7}{1} \times \dfrac{3}{4} = \dfrac{21}{4} = 5\tfrac{1}{4}$
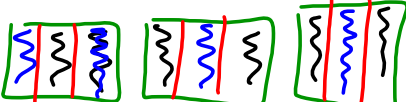
Ex) $2 \div \dfrac{1}{2} = 4$

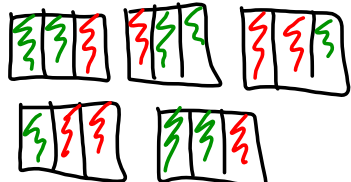$\dfrac{2}{1} \times \dfrac{2}{1} = \dfrac{4}{1} = 4$

Ex) $4 \div \dfrac{2}{3} = 6$

$\dfrac{4}{1} \times \dfrac{3}{2} = \dfrac{12}{2} = 6$

Ex) $3 \div \dfrac{1}{3} = 9$

Ex) $5 \div \dfrac{2}{3} = \dfrac{5}{1} \times \dfrac{3}{2} = \dfrac{15}{2} = 7\tfrac{1}{2}$

$7\tfrac{1}{2}$

Ex)

$\dfrac{\cancel{6}^{\,6}}{70} \times \dfrac{1}{\cancel{7}7}$

$\dfrac{6 \times 1}{70 \times 7}$
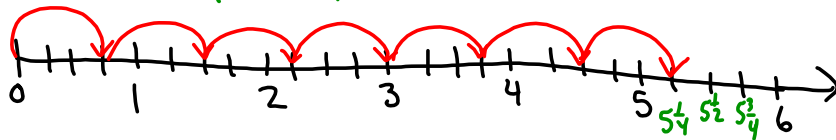
$\dfrac{6 \div 2}{490 \div 2}$

$= \dfrac{3}{245}$

Multiplying Fractions

Box method

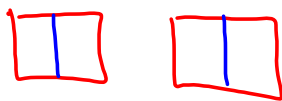$$\frac{2}{3} \times \frac{1}{4} = \frac{2}{12}$$

Ex2) $7 \times \frac{3}{4} = 5\frac{1}{4}$

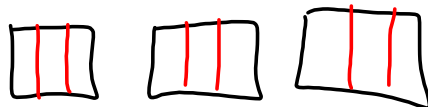$\frac{21}{4} = 5\frac{1}{4}$

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

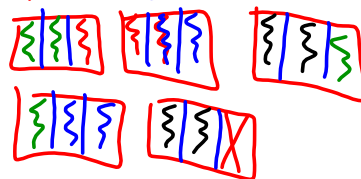$\frac{2}{1} \times \frac{2}{1} = \frac{4}{1} = 4$

Ex) $4 \div \frac{2}{3} = 6$

$4 \times \frac{3}{2} = \frac{12}{2}$
$= 6$

Ex) $3 \div \frac{1}{3}$

Ex) $5 \div \frac{2}{3}$

$7\frac{1}{2}$

Ex)

$\frac{66}{70} \times \frac{1}{7}$

$\frac{6 \times 1}{70 \times 7}$

$\frac{6}{490} \begin{array}{c}\div 2\\\div 2\end{array}$

$= \frac{3}{245}$

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

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

$\frac{15}{2} = 7\frac{1}{2}$

Pg 166

#2 ac
3a
#5 a b c d

6

9

#11 a c e

15

grade 8S

May 30

Pg 166 - 167

\# 8, 9, 11 a c, 13, 15

16 (ab)

Grade 8O