



## Warm Up Grade 8

Feb. 15, 2019

a)  $\frac{4}{9} \div \frac{3}{8}$

*mult* (arrow pointing to the division sign)  
*flip* (arrow pointing to the denominator 8)

$$= \frac{4}{9} \times \frac{8}{3}$$

$$= \frac{32}{27}$$

b)  $\frac{16}{21} \div \frac{32}{7}$

*multiply* (arrow pointing to the division sign)

$$= \frac{\cancel{16}^1}{3} \times \frac{\cancel{7}^1}{\cancel{32}^2} = \text{or } \frac{112}{672}$$

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

$$= \frac{1}{6}$$

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## 4. Number Reciprical

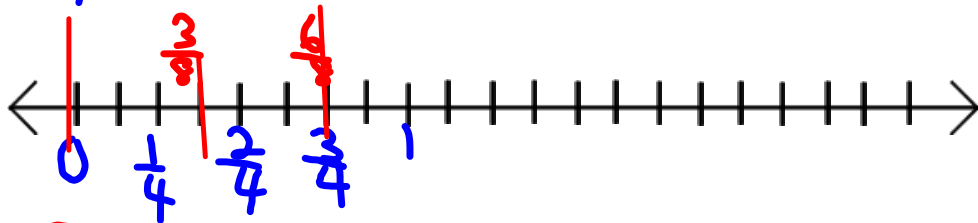
a)  $\frac{5}{9} \rightarrow \frac{9}{5}$

b)  $\frac{3}{7} \rightarrow \frac{7}{3}$

c)  $\frac{7}{8} \rightarrow \frac{8}{7}$

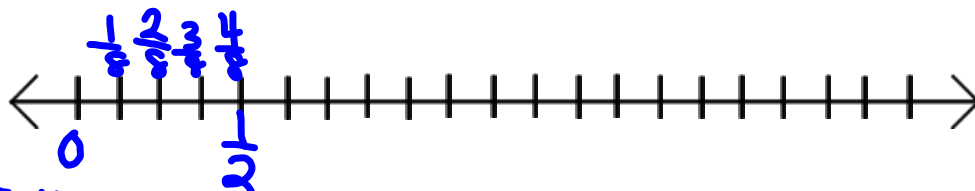
d)  $\frac{14}{15} \rightarrow \frac{15}{14}$

5a)  $\frac{3}{4} \div \frac{3}{8}$  (How many  $\frac{3}{8}$  in  $\frac{3}{4}$ )



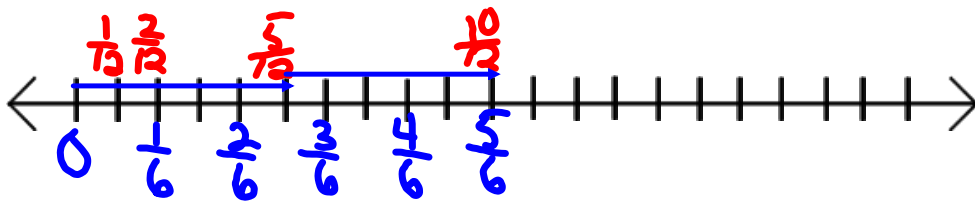
= 2

b)  $\frac{1}{2} \div \frac{1}{8}$



= 4

c)  $\frac{5}{6} \div \frac{5}{12}$



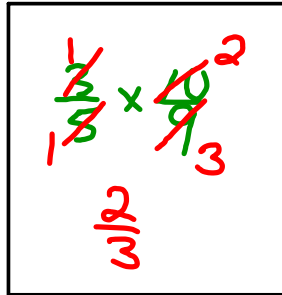
= 2

$$6. \frac{3}{5} \div \frac{9}{10}$$

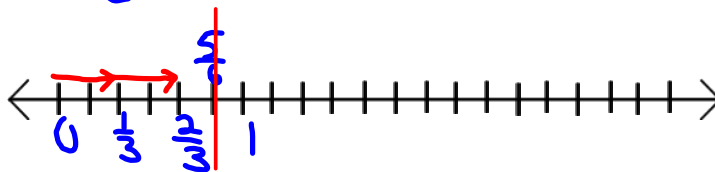
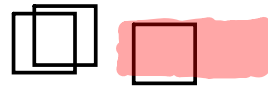
$$\frac{3}{5} \times \frac{10}{9}$$

$$= \frac{30}{45}$$

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

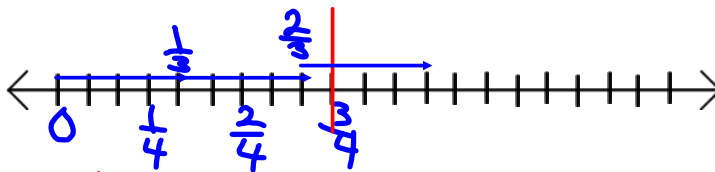


$$7a) \frac{5}{6} \div \frac{1}{2}$$



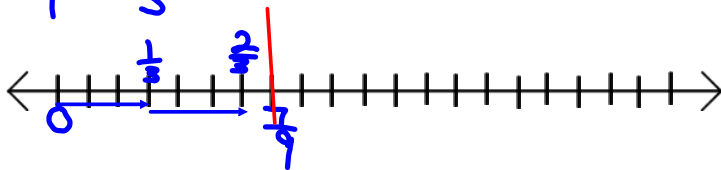
$$= 2\frac{1}{2}$$

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



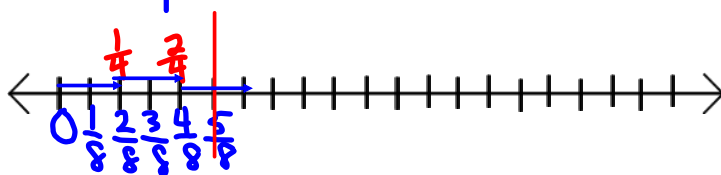
$$2\frac{1}{4}$$

$$c) \frac{7}{9} \div \frac{1}{3}$$



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

$$d) \frac{5}{8} \div \frac{1}{4}$$



$$2\frac{1}{2}$$

8 a)  $\frac{7}{10} \div \frac{3}{10}$   
 $\frac{7}{10} \times \frac{10}{3} = \frac{70}{30} = \frac{7}{3}$

b)  $\frac{5}{9} \div \frac{2}{9}$   
 $\frac{5}{9} \times \frac{9}{2} = \frac{45}{18} = \frac{5}{2}$

c)  $\frac{3}{5} \div \frac{2}{5}$   
 $\frac{3}{5} \times \frac{5}{2} = \frac{15}{10} = \frac{3}{2}$

d)  $\frac{4}{5} \div \frac{2}{5}$   
 $\frac{4}{5} \times \frac{5}{2} = \frac{20}{10} = 2$

9 a)  $\frac{8}{5} \div \frac{3}{4}$   
 $\frac{8}{5} \times \frac{4}{3} = \frac{32}{15}$

b)  $\frac{9}{10} \div \frac{2}{5}$   
 $\frac{9}{10} \times \frac{5}{2} = \frac{45}{20} = \frac{9}{4}$

c)  $\frac{7}{2} \div \frac{4}{3}$   
 $\frac{7}{2} \times \frac{3}{4} = \frac{21}{8}$

d)  $\frac{1}{2} \div \frac{7}{6}$   
 $\frac{1}{2} \times \frac{6}{7} = \frac{6}{14} = \frac{3}{7}$

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$$\textcircled{10} \quad \frac{7}{12} \div \frac{1}{4}$$

$$\frac{7}{12} \times \frac{4}{1} = \frac{28}{12}$$

$$= \frac{7}{3}$$

$$\textcircled{b) \quad \frac{3}{5} \div \frac{11}{10}}$$

$$\frac{3}{5} \times \frac{10}{11} = \frac{30}{55}$$

$$= \frac{6}{11}$$

$$\textcircled{c) \quad \frac{5}{2} \div \frac{1}{3}}$$

$$\frac{5}{2} \times \frac{3}{1} = \frac{15}{2}$$

$$\textcircled{d) \quad \frac{5}{6} \div \frac{9}{8}}$$

$$\frac{5}{6} \times \frac{8}{9} = \frac{40}{27}$$

$$\textcircled{11} \quad \textcircled{a) \quad \frac{5}{3} \div \frac{5}{3}}$$

$$\frac{5}{3} \times \frac{3}{5} = \frac{15}{15}$$

$$= 1$$

$$\textcircled{b) \quad \frac{4}{9} \div \frac{4}{9}}$$

$$\frac{4}{9} \times \frac{9}{4} = \frac{36}{36}$$

$$= 1$$

$$\textcircled{c) \quad \frac{1}{6} \div \frac{2}{5}}$$

$$\frac{1}{6} \times \frac{5}{2} = \frac{5}{12}$$

$$\textcircled{12} \quad \textcircled{a) \quad \frac{11}{12} \div \frac{1}{4}}$$

$$\frac{11}{12} \times \frac{4}{1} = \frac{44}{12}$$

$$= \frac{11}{3}$$

$$\text{or } 3\frac{2}{3}$$

$$\textcircled{b) \quad \frac{11}{12} \div \frac{1}{3}}$$

$$\frac{11}{12} \times \frac{3}{1} = \frac{33}{12}$$

$$= \frac{11}{4}$$

$$\text{or } 2\frac{3}{4}$$

$$\textcircled{c) \quad \frac{11}{12} \div \frac{1}{6}}$$

$$\frac{11}{12} \times \frac{6}{1} = \frac{66}{12}$$

$$= \frac{11}{2}$$

$$\text{or } 5\frac{1}{2}$$

$$\textcircled{d) \quad \frac{11}{12} \div \frac{1}{2}}$$

$$\frac{11}{12} \times \frac{2}{1} = \frac{22}{12}$$

$$= \frac{11}{6}$$

$$\text{or } 1\frac{5}{6}$$

$$13) \frac{3}{4} \div \frac{5}{8}$$

$$\frac{3}{4} \times \frac{8}{5} = \frac{24}{20}$$

$$= \frac{6}{5}$$

$$i) \frac{10}{8} \div \frac{3}{4}$$

$$\frac{10}{8} \times \frac{4}{3} = \frac{40}{24}$$

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

$$ii) \frac{7}{12} \div \frac{2}{5}$$

$$\frac{7}{12} \times \frac{5}{2} = \frac{35}{24}$$

$$ii) \frac{5}{12} \div \frac{7}{2}$$

$$\frac{5}{12} \times \frac{2}{7} = \frac{10}{84}$$

$$= \frac{5}{42}$$

$$v) \frac{5}{3} \div \frac{4}{5}$$

$$\frac{5}{3} \times \frac{5}{4} = \frac{25}{12}$$

$$v) \frac{4}{5} \div \frac{3}{5}$$

$$\frac{4}{5} \times \frac{5}{3} = \frac{20}{15}$$

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

$$14) \frac{2}{3} \div \frac{1}{12}$$

$$\frac{2}{3} \times \frac{12}{1} = \frac{24}{3}$$

$$= 8$$

He can clear 8 tables in  $\frac{2}{3}$  hour

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$$16) \frac{3}{4} \div \frac{1}{16}$$

$$\frac{3}{4} \times \frac{16}{1} = \frac{48}{4}$$

$$= 12$$

12 pairs of students can do the experiment

$$17) \frac{a}{b} \div \frac{c}{d} \quad 2, 3, 4, 5$$

many possibilities

b) Greatest Quotient

Largest Number  $\div$  Smallest

$$\frac{5}{2} \div \frac{3}{4} \quad \frac{4}{2} \div \frac{2}{5}$$

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

$$\frac{4}{2} \times \frac{5}{2} = \frac{20}{6}$$

Smallest Quotient

Smallest  $\div$  Largest

$$\frac{2}{5} \div \frac{4}{3} \quad \frac{3}{4} \div \frac{5}{2}$$

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

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

$$15) \frac{27}{28} \div \frac{9}{14}$$

$$= \frac{27}{28} \times \frac{14}{9}$$

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

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

$$16) \frac{15}{22} \div \frac{3}{11}$$

$$= \frac{15}{22} \times \frac{11}{3}$$

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

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

$$d) \frac{57}{69} \div \frac{11}{15}$$

$$= \frac{3 \times 19}{3 \times 23} \times \frac{15}{11}$$

$$= \frac{3 \times 5}{23 \times 11}$$

$$= \frac{15}{253}$$

Rule for Dividing Fractions is:

Flip second fraction and Multiply

$$\frac{7}{8} \div \frac{1}{3}$$
$$\frac{7}{8} \times \frac{3}{1} = \frac{7 \times 3}{8 \times 1} = \frac{21}{8}$$

## Dividing Mixed Fractions

$$3\frac{3}{8} \div 1\frac{1}{3}$$

$$\frac{27}{8} \div \frac{4}{3}$$

$$\frac{27}{8} \times \frac{3}{4} = \frac{81}{32}$$

Step 1 ) Change to Improper

Step 2 ) Flip and Multiply

Step 3 ) Reduce



When the division involves mixed numbers, change the mixed numbers to improper fractions first.

Try the following on your own:

$$(a) \frac{4}{5} \div \frac{7}{12}$$

$$(b) 1 \frac{2}{3} \div \frac{7}{8}$$

$$(c) 6 \div \frac{2}{7}$$

$$(d) 2 \frac{1}{6} \div \frac{5}{9}$$

$$(e) \frac{11}{15} \div 3 \frac{2}{3}$$

$$(f) 5 \frac{2}{5} \div 2 \frac{1}{8}$$

$$= \frac{1}{26 \times 5}$$

$$= \frac{13 \times 3}{2 \times 5}$$

$$= \frac{39}{10}$$

$$= 3 \frac{9}{10}$$

When the division involves mixed numbers, change the mixed numbers to improper fractions first.

Try the following on your own:

$$(a) \frac{4}{5} \div \frac{7}{12}$$

$$= \frac{4}{5} \times \frac{12}{7}$$

$$= \frac{48}{35}$$

$$= 1 \frac{13}{35}$$

$$(d) 2\frac{1}{6} \div \frac{5}{9}$$

$$= \frac{13}{6} \div \frac{5}{9}$$

$$= \frac{13}{6} \times \frac{9}{5}$$

$$= \frac{13 \times 9}{26 \times 5}$$

$$= \frac{13 \times 3}{2 \times 5}$$

$$= \frac{39}{10}$$

$$= 3 \frac{9}{10}$$

$$(b) 1\frac{2}{3} \div \frac{7}{8}$$

$$\frac{5}{3} \div \frac{7}{8}$$

$$\frac{5}{3} \times \frac{8}{7}$$

$$= \frac{40}{21} = 1 \frac{19}{21}$$

$$(c) 6 \div \frac{2}{7}$$

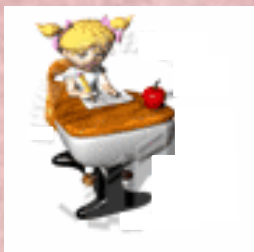
$$6 \times \frac{7}{2}$$

$$\frac{42}{2} = \frac{21}{1} = 21$$

$$(e) \frac{11}{15} \div 3\frac{2}{3}$$

$$(f) 5\frac{2}{5} \div 2\frac{1}{8}$$

#3



$$2\frac{1}{4} \div 5 =$$

1st step  
is Imprope

$$\frac{9}{4} \div \frac{5}{1}$$

2nd flip & m.

$$\frac{9}{4} \times \frac{1}{5} = \frac{9}{20}$$

# *Class / Homework*

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#6 (no estimations just use the rule)

#10

#11

#12

#13

#16 (Just divide no estimations)

