



Grade 8

$$1) \frac{15}{16} \div \frac{7}{8}$$

$$\frac{15}{16} \times \frac{8}{7}$$

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

$$\frac{15}{14} = 1\frac{1}{14}$$

2) Franklin works at the local food bank where he worked  $\frac{11}{12}$  hours on Monday and  $\frac{3}{4}$  hours on Tuesday.

- a) How long did Franklin work at the food bank in total? **Add**
- b) How much longer did he work on Monday than Tuesday?

$$a) \frac{11}{12} + \frac{3}{4}$$

Need C.D.

$$\frac{11}{12} + \frac{9}{12}$$

$$\frac{20}{12}$$

Reduce

$$\frac{10}{6}$$

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

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

Franklin worked a total of  $1\frac{2}{3}$  hours.

$$b) \frac{11}{12} - \frac{3}{4}$$

C.D.

$$\frac{11}{12} - \frac{9}{12}$$

$$\frac{2}{12}$$

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

Franklin worked  $\frac{1}{6}$  of an hour longer on Monday.

## Key Words for operations

Addition	Subtraction	Multiplication	Division
sum	Difference	product	quotient
in total	how much more	repeated	shared
all together	minus	of	given total:
add	withdraw	times	-how many
deposit	How much is left?		smaller groups
more	less		can be made?

*Fraction  
Need C.D*

*Top x top  
Bot x Bot*

*Fl.p and mult*

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

$$b) 3\frac{2}{7} = \frac{23}{7}$$

$$c) 6\frac{1}{6} = \frac{37}{6}$$

$$d) 2\frac{1}{4} = \frac{9}{4}$$

$$e) 1\frac{7}{10} = \frac{17}{10}$$

$$f) 7\frac{2}{3} = \frac{23}{3}$$

$$g) 2\frac{5}{9} = \frac{23}{9}$$

$$h) 5\frac{2}{5} = \frac{27}{5}$$

$$5. a) \frac{14}{9} = 1\frac{5}{9}$$

$$b) \frac{16}{7} = 2\frac{2}{7}$$

$$c) \frac{24}{5} = 4\frac{4}{5}$$

$$d) \frac{21}{10} = 2\frac{1}{10}$$

$$e) \frac{15}{6} = 2\frac{3}{6} \text{ or } 2\frac{1}{2}$$

$$f) \frac{23}{7} = 3\frac{2}{7}$$

$$g) \frac{17}{3} = 5\frac{2}{3}$$

$$h) \frac{25}{12} = 2\frac{1}{12}$$

6 a)  $6\frac{1}{8} \div 2\frac{2}{3}$   
 $\approx 6 \div 3 = 2$   
 closer to 2

$\frac{49}{8} \div \frac{8}{3}$   
 $\frac{49}{8} \times \frac{3}{8}$

b)  $7\frac{4}{5} \div 1\frac{3}{4}$   
 $\approx 8 \div 2 = 4$   
 closer to 4

$\frac{39}{5} \div \frac{7}{4}$   
 $\frac{39}{5} \times \frac{4}{7}$

c)  $3\frac{1}{8} \div 2\frac{3}{4}$   
 $\approx 3 \div 3 = 1$   
 closer to 1

$\frac{147}{64}$   
 $\frac{25}{8} \div \frac{4}{7}$   
 $\frac{25}{8} \times \frac{7}{4}$   
 $= \frac{25 \cdot 7}{2 \cdot 2 \cdot 2}$

d)  $9\frac{4}{7} \div 2\frac{1}{9}$   
 $\approx 10 \div 2 = 5$   
 closer to 5

$\frac{156}{35}$   
 $\frac{67}{7} \div \frac{19}{9}$   
 $\frac{67}{7} \times \frac{9}{19}$

7.  $1\frac{4}{5} \div 2\frac{7}{10}$

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

$\frac{9}{5} \div \frac{27}{10}$   
 $\frac{9}{5} \times \frac{10}{27}$   
 $\frac{2}{3}$

or  $\frac{90}{135}$   
 $\frac{2}{3}$

8a)  $3\frac{3}{4} \div 1\frac{1}{8}$

$$\frac{15}{4} \div \frac{9}{8}$$

$$\frac{15}{4} \times \frac{8}{9} = \frac{10}{3}$$

$$\frac{120}{36} = \frac{20}{6} = \frac{10}{3}$$

b)  $1\frac{1}{6} \div 4\frac{1}{3}$

$$\frac{7}{6} \div \frac{13}{3}$$

$$\frac{7}{6} \times \frac{3}{13} = \frac{21}{78}$$

$$= \frac{7}{26}$$

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

d)  $\frac{2}{3} \div 1\frac{1}{9}$

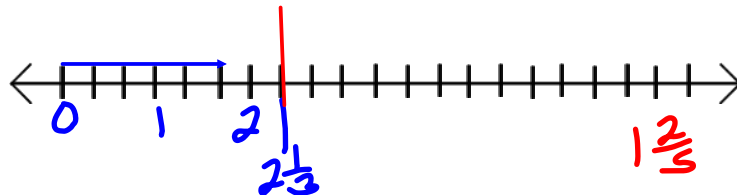
$$\frac{2}{3} \div \frac{10}{9}$$

$$\frac{2}{3} \times \frac{9}{10} = \frac{18}{30}$$

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

9  
2)  $2\frac{1}{3} \div 1\frac{2}{3}$

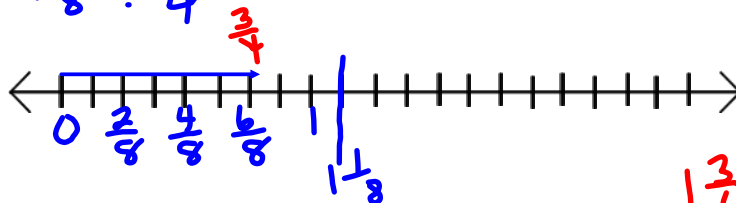
$1\frac{2}{3} \rightarrow 5$  pieces



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

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

b)  $1\frac{1}{8} \div \frac{3}{4}$



$1\frac{3}{6}$  or  $1\frac{1}{2}$

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

$$\frac{9}{8} \times \frac{4}{3} = \frac{36}{24}$$

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

$$\begin{aligned} \text{10. a) } 3\frac{2}{3} &\div 5\frac{1}{4} \\ \frac{11}{3} &\div \frac{21}{4} \\ \frac{11}{3} \times \frac{4}{21} &= \frac{44}{63} \end{aligned}$$

$$\begin{aligned} \text{b) } 4\frac{3}{8} &\div 1\frac{5}{16} \\ \frac{35}{8} &\div \frac{21}{16} \\ \frac{35}{8} \times \frac{16}{21} &= \frac{10}{3} \end{aligned}$$

$$\begin{aligned} \text{c) } 1\frac{3}{10} &\div 3\frac{3}{5} \\ \frac{13}{10} &\div \frac{18}{5} \\ \frac{13}{10} \times \frac{5}{18} &= \frac{65}{180} \\ &= \frac{13}{36} \end{aligned}$$

$$\text{d) } 3\frac{2}{3} \div 3\frac{2}{3} = 1$$

$$\begin{aligned} \text{11. a) } 1\frac{9}{10} &\div 2\frac{2}{3} \approx 2 \div 3 \\ &\frac{2}{3} \\ \frac{19}{10} &\div \frac{16}{6} \\ \frac{19}{10} \times \frac{3}{8} &= \frac{57}{80} \end{aligned}$$

$$\begin{aligned} \text{b) } 2\frac{3}{4} &\div 2\frac{1}{4} \text{ (a little more than)} \\ \frac{11}{4} &\div \frac{9}{4} \\ \frac{11}{4} \times \frac{4}{9} &= \frac{11}{9} \end{aligned}$$

$$\begin{aligned} \text{c) } 1\frac{4}{5} &\div 3\frac{1}{2} \approx 2 \div 4 \\ &\frac{1}{2} \text{ (but more than } \frac{1}{2}) \\ \frac{9}{5} &\div \frac{7}{2} \\ \frac{9}{5} \times \frac{2}{7} &= \frac{18}{35} \end{aligned}$$

$$\text{d) } 1\frac{3}{8} \div 1\frac{3}{8} = 1$$

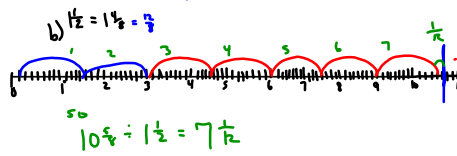
$$\begin{aligned} \text{12. a) } 12\frac{1}{2} &\div 1\frac{1}{4} \\ \frac{25}{2} &\div \frac{5}{4} \\ \frac{25}{2} \times \frac{4}{5} &= \frac{10}{1} \\ \frac{100}{2} &= 10 \end{aligned}$$

It took 10 evenings

$$\begin{aligned} \text{13. a) } 11\frac{2}{3} &\div 3\frac{1}{3} \\ \frac{35}{3} &\div \frac{10}{3} \\ \frac{35}{3} \times \frac{3}{10} &= \frac{35}{10} \text{ or } 3\frac{1}{2} \\ &\text{It took } 3\frac{1}{2} \text{ minutes to complete 1 lap.} \end{aligned}$$

14) Ordered  $10\frac{5}{8}$  loads  
Each planter holds  $1\frac{1}{2}$  loads

a) Estimate  
 $11 \div 1.5$   
 $11 \div 2 = 5.5$  so larger than 5.5  
so guess 7



c)  $10\frac{5}{8} \div 1\frac{1}{2}$   
 $= \frac{85}{8} \div \frac{3}{2}$   
*flip & multiply*  
 $= \frac{85}{8} \times \frac{2}{3}$   
 $= \frac{85 \times 2}{8 \times 3} \Rightarrow \text{OR } \frac{170}{24} \div 2 = \frac{85}{12} = 7\frac{1}{2}$   
 $= \frac{85}{12}$   
 $= 7\frac{1}{2}$

14d) she filled 7 pots and only  $\frac{1}{2}$  of the eighth pot.

16) a)  $\frac{8}{5} \div \frac{4}{3}$   
 $= \frac{8}{5} \times \frac{3}{4}$  or  $\frac{24}{20} = \frac{6}{5}$   
 $= \frac{28 \times 3}{5 \times 4}$   
 $= \frac{2 \times 3}{5 \times 1}$   
 $= \frac{6}{5}$

16)b)  $2\frac{1}{4} \div 1\frac{7}{8}$   
 $= \frac{9}{4} \div \frac{15}{8}$   
 $= \frac{9}{4} \times \frac{8}{15}$   
 $= \frac{11 \times 8^2}{14 \times 15} \Rightarrow \frac{88}{60} = \frac{22}{15} = 1\frac{7}{15}$   
 $= \frac{22}{15}$   
 $= 1\frac{7}{15}$

16)c)  $4\frac{4}{9} \div 2\frac{1}{8}$   
 $\frac{44}{9} \div \frac{17}{8}$   
 $= \frac{44}{9} \times \frac{8}{17}$   
 $= \frac{352}{153}$   
 $= 2\frac{4}{153}$

d)  $2\frac{1}{10} \div 1\frac{5}{6}$   
 $= \frac{21}{10} \div \frac{11}{6}$   
 $= \frac{21}{10} \times \frac{6}{11}$   
 $= \frac{126}{110}$   
 $= 1\frac{8}{55}$

George scored 7 points in a game. This was  $\frac{1}{3}$  of the total points. How many goals did George's team score in total?

$$\begin{array}{l} \frac{1}{3} \text{ of Total} = 7 \\ \downarrow \\ \text{1 whole of Total} \Rightarrow \text{Total} \\ \rightarrow \frac{3}{3} \text{ of Total} = 21 \end{array}$$

*(Note: A red arrow labeled 'x3' points from the first equation to the second, and a green arrow labeled 'x3' points from the second equation to the third.)*

$$7 \div \frac{1}{3}$$

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

George's team  
Scored 21 points  
in total.



# *Class / Homework*

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do the math

Unit 3 Test Friday???? *Tuesday* *Dec.19*

*Pg 508 → Check answers*