



## Warm Up Grade 8

January 16, 2017



Evaluate.

$$\begin{aligned} 1) \quad & 2\frac{5}{6} + \frac{5}{8} \\ & = \frac{17 \times 4}{6 \times 4} + \frac{5 \times 3}{8 \times 3} \\ & = \frac{68}{24} + \frac{15}{24} \\ & = \frac{83}{24} \\ & = 3\frac{11}{24} \end{aligned}$$

$$\begin{aligned} 2) \quad & 3\frac{1}{8} - 1\frac{1}{4} \\ & = \frac{25}{8} - \frac{5 \times 2}{4 \times 2} \\ & = \frac{25}{8} - \frac{10}{8} \\ & = \frac{15}{8} \\ & = 1\frac{7}{8} \end{aligned}$$

## sheet 153 - Adding/subtracting Mixed Numbers Homework Solutions

$$\begin{aligned} 1. \quad & 2\frac{3}{10} + 1\frac{1}{10} \\ & = 3\frac{4}{10} \\ & = 3\frac{2}{5} \end{aligned}$$

$$\begin{aligned} b) \quad & 1\frac{3}{5} + \frac{4}{5} \\ & 1\frac{7}{5} \quad \frac{7}{5} = 1\frac{2}{5} \\ & 2\frac{2}{5} \end{aligned}$$

$$\begin{aligned} c) \quad & 2\frac{2}{3} + 1\frac{1}{4} \\ & 2+1 + \frac{2}{3} + \frac{1}{4} \\ & 3 + \frac{8}{12} + \frac{3}{12} \\ & 3\frac{11}{12} \end{aligned}$$

$$\begin{aligned} d) \quad & 6\frac{3}{4} + 2\frac{1}{2} \\ & 6\frac{3}{4} + 2\frac{2}{4} \\ & 8\frac{5}{4} \\ & 9\frac{1}{4} \end{aligned}$$

$$e) \quad 8\frac{2}{5} + 2\frac{3}{10}$$

$$\begin{aligned} & \frac{42}{5} + \frac{23}{10} \\ & \frac{84}{10} + \frac{23}{10} \\ & \frac{107}{10} \end{aligned}$$

$$\begin{aligned} & 8\frac{4}{10} + 2\frac{3}{10} \\ & 10\frac{7}{10} \end{aligned}$$

$$f) \quad 1\frac{7}{12} + 2\frac{3}{5}$$

$$1+2 + \frac{7}{12} + \frac{3}{5}$$

$$3 + \frac{35}{60} + \frac{36}{60}$$

$$3\frac{71}{60} = 4\frac{11}{60}$$

$$3 + 1\frac{11}{60}$$

$$\begin{aligned} g) \quad & 5\frac{2}{5} + 1\frac{3}{5} \\ & 6\frac{5}{5} \\ & = 7 \end{aligned}$$

$$h) \quad 3\frac{4}{5} + 4\frac{3}{4}$$

$$\begin{aligned} & 3+4 + \frac{4}{5} + \frac{3}{4} \\ & 7\frac{20}{20} + \frac{15}{20} \end{aligned}$$

$$\begin{aligned} & 7\frac{31}{20} \\ & 8\frac{11}{20} \end{aligned}$$

$$i) \quad 2\frac{2}{3} + 1\frac{7}{10}$$

$$2\frac{20}{30} + 1\frac{21}{30}$$

$$3\frac{41}{30}$$

$$4\frac{11}{30}$$

sheet 153 - Adding/subtracting Mixed Number **Homework Solutions**  
 Sheet 153

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

$$\underbrace{1\frac{3}{4} + \frac{1}{4}}_2 + 2\frac{1}{2}$$

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

or

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

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

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

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

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

$$\frac{7}{4} + \frac{1}{4} + \frac{5}{2}$$

$$= \frac{7}{4} + \frac{1}{4} + \frac{10}{4}$$

$$= \frac{18}{4} = \frac{9}{2}$$

$$= 4\frac{2}{4} \text{ Reduce}$$

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

2

$$b) 1\frac{9}{10} + 3\frac{1}{2} + 2\frac{3}{5}$$

$$1\frac{9}{10} + 3\frac{5}{10} + 2\frac{6}{10}$$

$$6\frac{20}{10}$$

$$6 + 2$$

$$8$$

$$\text{OR } 1\frac{9}{10} + 3\frac{1}{2} + 2\frac{3}{5}$$

$$\frac{19}{10} + \frac{35}{10} + \frac{26}{10}$$

$$\frac{80}{10} = 8$$

$$\begin{aligned}
 & 2 \quad c) 2\frac{5}{12} + 1\frac{2}{3} + 4\frac{1}{2} \\
 & = 2\frac{5}{12} + 1\frac{8}{12} + 4\frac{6}{12} \\
 & = \underbrace{2+1+4}_{7} + \underbrace{\frac{5}{12} + \frac{8}{12} + \frac{6}{12}}_{\frac{19}{12}} \\
 & = 7 + 1\frac{7}{12} \\
 & = 8\frac{7}{12}
 \end{aligned}$$

OR

$$2\frac{5}{12} + 1\frac{2}{3} + 4\frac{1}{2}$$

$$\frac{29}{12} + \frac{5 \times 4}{3 \times 4} + \frac{9 \times 6}{2 \times 6}$$

$$\frac{29}{12} + \frac{20}{12} + \frac{54}{12}$$

$$= \frac{103}{12}$$

$$= 8\frac{7}{12}$$

$$\begin{aligned}
 & 2 \quad d) 3\frac{3}{4} + \frac{1}{3} + 2\frac{1}{2} \\
 & 3\frac{9}{12} + \frac{4}{12} + 2\frac{6}{12} \\
 & 5\frac{19}{12} \\
 & 6\frac{7}{12} \quad \left(\frac{79}{12}\right)
 \end{aligned}$$

OR

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

$$\frac{15}{4} + \frac{1}{3} + \frac{5}{2}$$

$$\frac{45}{12} + \frac{4}{12} + \frac{30}{12}$$

$$\frac{79}{12}$$

$$= 6\frac{7}{12}$$

sheet 153 - Adding/subtracting Mixed Number **Homework Solutions**

3 a)  $2\frac{3}{5} - 1\frac{1}{4}$   
 $2\frac{12}{20} - 1\frac{5}{20}$   
 $1\frac{7}{20}$

b)  $1\frac{2}{3} - 2\frac{1}{6}$   
 $1\frac{4}{6} - 2\frac{1}{6}$   
 $1\frac{3}{6}$

\*c)  $3 - 2\frac{1}{6}$   
 $2\frac{6}{6} - 2\frac{1}{6}$   
 $0\frac{5}{6}$

d)  $22\frac{1}{6} - 4\frac{5}{6}$   
 $21\frac{7}{6} - 4\frac{5}{6}$   
 $17\frac{2}{6}$  or  $17\frac{1}{3}$  ( $\frac{52}{3}$ )

$\frac{132}{6} - \frac{29}{6}$   
 $\frac{103}{6}$  ✓  
 $17\frac{2}{6}$   
 $17\frac{1}{3}$

$22\frac{1}{6} - 4\frac{5}{6}$   
 $22 - 4 = 18$   
 $1\frac{1}{6} - \frac{5}{6}$   
 $17$   
 $17$   
 $17\frac{2}{6}$   
 $17\frac{1}{3}$

can't be done  
 So need to borrow from whole #

sheet 153 - Adding/subtracting Mixed Number Homework Solutions

4. a)  $2\frac{3}{4} + 3\frac{3}{8} + 2\frac{1}{2}$

$2\frac{6}{8} + 3\frac{3}{8} + 2\frac{4}{8}$

$7\frac{13}{8}$

$7 + 1\frac{5}{8} = 8\frac{5}{8} \left(\frac{69}{8}\right)$

b)  $10 - 8\frac{5}{8}$

$2 - \frac{5}{8}$

$2\frac{8}{8} - \frac{5}{8}$

$\frac{16}{8} - \frac{5}{8} = \frac{11}{8}$

5 a)  $1\frac{3}{5} + 2\frac{1}{6}$

$1\frac{18}{30} + 2\frac{5}{30}$

$3\frac{23}{30} \left(\frac{113}{30}\right)$

b)  $2\frac{1}{6} - 1\frac{2}{3}$

$\frac{13}{6} - \frac{8}{3}$   
 $\frac{65}{30} - \frac{48}{30}$   
 $\frac{17}{30}$

$2 - 1$   
 $1$   
 $0$

$\frac{1 \times 5}{6 \times 5} - \frac{3 \times 6}{5 \times 6}$

$\frac{5}{30} - \frac{18}{30}$

Need borrow

$\frac{5}{30} - \frac{18}{30}$

$\frac{35}{30} - \frac{18}{30} = \frac{17}{30}$

c)  $5 - 3\frac{23}{30}$

$2 - \frac{23}{30}$

$1\frac{7}{30}$

## add to you notes

## Finding a Fraction of a Whole Number

Often we can find a fraction of a whole number mentally, by using a unit fraction.

A unit fraction is a fraction that has a numerator of 1.  
 ex.  $\frac{1}{5}$ ,  $\frac{1}{12}$ ,  $\frac{1}{8}$ ,  $\frac{1}{3}$

★ What does "of" mean in math?  
 "of" means to multiply

$$\frac{1}{6} \text{ of } 18 = \boxed{3}$$

$18 \div 6$   
like  $\div$  by 6

★ ex 1)  $\frac{1}{6}$  of 18

You can find  $\frac{1}{6}$  of 18 by dividing 18 by 6

$$\frac{1}{6} \text{ of } 18 = \underline{3}$$

★ ex 2)  $\frac{1}{5}$  of 45

Find  $\frac{1}{5}$  of 45 by dividing 45 by 5

$$\frac{1}{5} \text{ of } 45 = \underline{9}$$

$$\frac{1}{2} \text{ of } 6 = 3$$

like  $6 \div 2$

ex 3)  $\frac{1}{12}$  of 36

Find  $\frac{1}{12}$  of 36 by dividing 36 by 12

$$\frac{1}{12} \text{ of } 36 = \underline{3}$$



You try

★  $\frac{1}{2}$  of 26 =  $\boxed{13}$

2 like  $26 \div 2$

★  $\frac{1}{3}$  of 30 =  $\boxed{10}$

3 like  $30 \div 3$

★  $\frac{1}{6}$  of 60 = 10

6

$\frac{1}{8}$  of 40 = 5

8 like  $40 \div 8$

$\frac{1}{11}$  of 55 =  $\boxed{5}$

11 like  $55 \div 11$

You try

Then you can use the unit fractions, to help you get other answers

#1) 2/5 of 45  
 1/5 of 45 = 9  
 so 2/5 of 45 = 18

$$\frac{2}{5} \text{ of } 45 = 18$$

#2) 7/9 of 63  
 1/9 of 63 = 7  
 so 7/9 of 63 = 49

$$\frac{7}{9} \text{ of } 63$$

#3) 6/11 of 88  
 1/11 of 88 = 8  
 so 6/11 of 88 = 48

$$\frac{1}{9} \text{ of } 63 = 7$$

$$\frac{7}{9} \text{ of } 63 = 49$$

write unit fraction  
 find denominator

Find the value of each BUT show work

a)  $\frac{3}{7}$  of 28 =

7  
unit fraction

$$\begin{array}{l} \times 3 \left( \frac{1}{7} \text{ of } 28 = 4 \right) \times 3 \\ \frac{3}{7} \text{ of } 28 = \boxed{12} \end{array}$$

b)  $\frac{4}{5}$  of 20 =

5

$$\begin{array}{l} \times 4 \left( \frac{1}{5} \text{ of } 20 = 4 \right) \times 4 \\ \text{like 20:5} \\ \frac{4}{5} \text{ of } 20 = \boxed{16} \end{array}$$

Sometimes you will estimate the fraction of the whole number. And you estimate when the unit fraction does not give a whole number.

For example  $\frac{1}{3}$  of 20 will not be a whole number

But you can estimate  $\frac{1}{3}$  of 21 = 7

Estimate the following:

(a)  $\frac{1}{8}$  of 50

Est.  $\frac{1}{8}$  of 48

6

(b)  $\frac{5}{7}$  of 36

Est.  $\frac{1}{7}$  of 35 = 5

$\frac{5}{7}$  of 35 = 5 x 5

= 25

(c)  $\frac{9}{10}$  of 72

Est.  $\frac{1}{10}$  of 70 = 7

$\frac{9}{10}$  of 70 = 9 x 7

= 63

Sometimes when estimating you change the fraction instead of the number, but most times its easier to change the number.

# Class/Homework

## Power Builder WORKSHEET

$$6) \frac{3}{7} \text{ of } \frac{2}{8} = 12$$
$$x^3 \left( \frac{1}{7} \text{ of } 28 = 4 \right) x^3$$

## Mental Math - Lesson 29

## Power Builder A

1.  $\frac{1}{4}$  of 12 = 3

2.  $\frac{1}{5}$  of 35 = 7

3.  $\frac{1}{8}$  of 40 = 5

4.  $\frac{1}{3}$  of 45 = 15

5.  $\frac{1}{7}$  of 28 = 4

6.  $\frac{3}{4}$  of 28 =  $3 \times 4$   
= 12

7.  $\frac{1}{5}$  of 45 = 9

8.  $\frac{2}{5}$  of 45 =  $9 \times 2$   
= 18

9.  $\frac{1}{10}$  of 70 = 7

10.  $\frac{3}{10}$  of 70 =  $3 \times 7$   
= 21

11.  $\frac{4}{5}$  of 20

$\frac{1}{5}$  of 20 = 4

$\frac{4}{5}$  of 20 =  $4 \times 4 = 16$

12.  $\frac{3}{7}$  of 42

$\frac{1}{7}$  of 42 = 6

$\frac{3}{7}$  of 42 =  $6 \times 3$   
= 18

13.  $\frac{3}{4}$  of 100

$\frac{1}{4}$  of 100 = 25

$\frac{3}{4}$  of 100 =  $3 \times 25$   
= 75

14.  $\frac{2}{3}$  of 90

$\frac{1}{3}$  of 90 = 30

$\frac{2}{3}$  of 90 = 60

15.  $\frac{3}{5}$  of 100

$\frac{1}{5}$  of 100 = 20

$\frac{3}{5}$  of 100 =  $20 \times 3$   
= 60

16.  $\frac{5}{8}$  of 40

$\frac{1}{8}$  of 40 = 5

$\frac{5}{8}$  of 40 =  $5 \times 5 = 25$

17.  $\frac{2}{3}$  of 600

$\frac{1}{3}$  of 600 = 200

$\frac{2}{3}$  of 600 =  $2 \times 200$   
= 400

18.  $\frac{3}{4}$  of 200

$\frac{1}{4}$  of 200 = 50

$\frac{3}{4}$  of 200 =  $3 \times 50$   
= 150

19.  $\frac{4}{5}$  of 200

$\frac{1}{5}$  of 200 = 40

$\frac{4}{5}$  of 200 =  $4 \times 40$   
= 160

20.  $\frac{2}{3}$  of 450

$\frac{1}{3}$  of 450 = 150

$\frac{2}{3}$  of 450 =  $2 \times 150$   
= 300

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

4	4	4				
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## Attachments

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