



### Warm Up Grade 8

Nov 23, 2022



Evaluate.

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

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

$$\frac{6}{20} \xrightarrow[\div 2]{\div 2} \frac{3}{10} = 0.\underline{3} \quad \left\{ \frac{6 \times 5}{20 \times 5} = \frac{30}{100} = 0.\underline{3}0 \right.$$

$$\frac{7}{25} \xrightarrow[\times 4]{\times 4} \frac{28}{100} = 0.\underline{2}8$$

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

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

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

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

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

$$\begin{aligned} e) \quad & 8\frac{2}{5} + 2\frac{3}{10} \\ & \frac{42}{5} + \frac{23}{10} \\ & \frac{84}{10} + \frac{23}{10} \\ & \frac{107}{10} \end{aligned}$$

$$\begin{aligned} f) \quad & 1\frac{7}{12} + 2\frac{3}{5} \\ & 1+2 + \frac{7}{12} + \frac{3}{5} \\ & 3 + \frac{35}{60} + \frac{36}{60} \\ & 3\frac{71}{60} = 4\frac{11}{60} \end{aligned}$$

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

$$\begin{aligned} h) \quad & 3\frac{4}{5} + 4\frac{3}{4} \\ & 3+4 + \frac{4}{5} + \frac{3}{4} \\ & 7\frac{20}{20} + \frac{15}{20} \\ & 7\frac{31}{20} \\ & 8\frac{11}{20} \end{aligned}$$

$$\begin{aligned} i) \quad & 2\frac{2}{3} + 1\frac{7}{10} \\ & 2\frac{20}{30} + 1\frac{21}{30} \\ & 3\frac{41}{30} \\ & 4\frac{11}{30} \end{aligned}$$

Sheet 153 - Adding/subtracting Mixed Number Homework Solutions

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

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

$$\underbrace{2 + 2\frac{1}{2}}_{4\frac{1}{2}}$$

or

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$7\frac{13}{8}$

$7 + 1\frac{5}{8} = 8\frac{5}{8}$  (6/9)

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

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

$2\frac{8}{8} - \frac{5}{8} = \frac{11}{8}$

5 a)  $1\frac{5}{6} + 2\frac{1}{6}$   
 $1\frac{5}{6} + 2\frac{1}{6}$   
 $3\frac{6}{6}$  ( $\frac{11}{6}$ )

b)  $2\frac{1}{6} - 1\frac{5}{6}$   
 $\frac{6}{6} - \frac{5}{6}$   
 $\frac{1}{6}$

$2 - 1$   
 $1$   
 $0$

$\frac{1 \times 5}{6 \times 5} - \frac{3 \times 6}{5 \times 6}$   
 $\frac{5}{30} - \frac{18}{30}$   
 Need borrow  
 $\frac{5}{30} - \frac{18}{30}$   
 $\frac{35}{30} - \frac{18}{30} = \frac{17}{30}$

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



## Quiz

## 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

★ ex 1)  $\frac{1}{6}$  of 18

$$\frac{1}{6} \times 18 \quad \text{like } \div 6$$

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

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

$$\frac{1}{2} \text{ of } 10 = 5$$

↓ like  $\div 2$

★ ex 2)  $\frac{1}{5}$  of 45  
Find  $\frac{1}{5}$  of 45 by dividing 45 by 5  
 $\frac{1}{5}$  of 45 = 9

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

→ like  $\div$  by 5

ex 3)  $\frac{1}{12}$  of 36  
Find  $\frac{1}{12}$  of 36 by dividing 36 by 12  
 $\frac{1}{12}$  of 36 =     

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

→ like  $\div 12$

You try

$$\star \frac{1}{2} \text{ of } 26 = 13$$

↓  
like ÷ 2

$$\star \frac{1}{3} \text{ of } 30 = 10$$

$$\star \frac{1}{6} \text{ of } 60 = 10$$

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

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

## You try

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

#1)  $\frac{2}{5}$  of 45 = 18  
 $\frac{1}{5}$  of 45 = 9  
 so  $\frac{2}{5}$  of 45 =

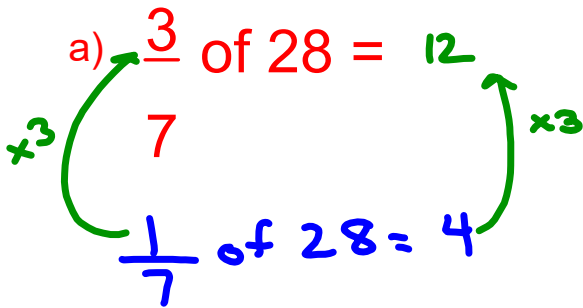
#2)  $\frac{7}{9}$  of 63 = 49  
 $\frac{1}{9}$  of 63 = 7  
 so  $\frac{7}{9}$  of 63 =

#3)  $\frac{6}{11}$  of 88 = 48  
 $\frac{1}{11}$  of 88 = 8  
 so  $\frac{6}{11}$  of 88 =

Find the value of each BUT show work

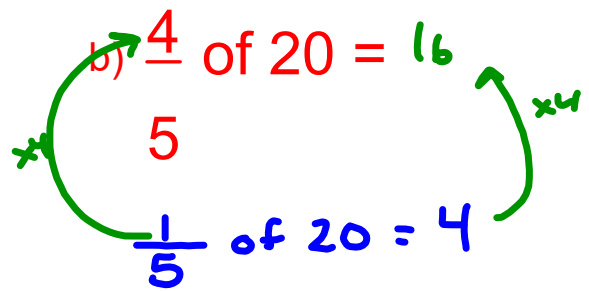
a)  $\frac{3}{7}$  of 28 = 12

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



b)  $\frac{4}{5}$  of 20 = 16

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



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**



## 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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Grade 8 Mental Math POWER BUILDER PDF.pdf