Warm Up Grade 8

January 28, 2016

6 | 6, 12, 18, 24, 30.
8 | 8, 16, 24

Evaluate.

1) $2\frac{5}{6}\times\frac{4}{4} + \frac{5}{8}\times\frac{3}{3}$

$2\frac{20}{24} + \frac{15}{24}$

$2 + \frac{20}{24} + \frac{15}{24}$

$2 + \frac{35}{24}$ ← Improper

Not allowed

So Change to mix

$2 + 1\frac{11}{24}$

$3\frac{11}{24}$

Impers

$\frac{68}{24} + \frac{15}{24}$

$\frac{83}{24}$

$3\frac{11}{24}$

2) $3\frac{1}{8} - 1\frac{1}{4}\times\frac{2}{2}$

$3 - 1 \quad \frac{1}{8} - \frac{1\times2}{4\times2}$

$2 \quad \frac{1}{8} - \frac{2}{8}$

Need to Borrow

$1 \quad \frac{1}{8} - \frac{2}{8}$

$\frac{9}{8} - \frac{2}{8}$

$1\frac{7}{8}$

$3\frac{1}{8} - 1\frac{2}{8}$

Improper

$\frac{25}{8} - \frac{10}{8}$

$\frac{15}{8}$

$1\frac{7}{8}$

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

1. $2\frac{3}{10} + 1\frac{1}{10}$

$= 3\frac{4}{10}$

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

b) $1\frac{3}{5} + \frac{4}{5}$

$1\frac{7}{5}$ $\frac{7}{5} = 1\frac{2}{5}$

$2\frac{2}{5}$

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

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

$3+\frac{8}{12}+\frac{3}{12}$

$3\frac{11}{12}$

d) $6\frac{3}{4} + 2\frac{1}{2}$

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

$8\frac{5}{4}$

$9\frac{1}{4}$

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

$\frac{42}{5} + \frac{23}{10}$ $8\frac{4}{10}+2\frac{3}{10}$

$\frac{84}{10} + \frac{23}{10}$ $10\frac{7}{10}$

$\frac{107}{10}$

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

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

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

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

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

g) $5\frac{2}{5} + 1\frac{3}{5}$

$6\frac{5}{5}$

$= 7$

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

$3+4+\frac{16}{20}+\frac{15}{20}$

$7\frac{20}{20}$

$7\frac{31}{20}$

$8\frac{11}{20}$

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

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

$3\frac{41}{30}$

$4\frac{11}{30}$

sheet 153 - Adding/subtracting Mixed Number Homework Solutions

Sheet 153

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

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

$4\frac{1}{2}$

Or

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

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

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

$4\frac{1}{2}$

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

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

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

$= \frac{18}{4}$

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

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

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

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

2

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

$= 2\frac{5}{12} + 1\frac{8}{12} + 4\frac{6}{12}$

$= 2+1+4 + \frac{5}{12} + \frac{8}{12} + \frac{6}{12}$

$= 7 + \frac{19}{12}$

$= 7 + 1\frac{7}{12}$

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

OR

OR

OR

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

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

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

$= \frac{103}{12}$

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

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

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

$5\frac{19}{12}$

$6\frac{7}{12}$ $\left(\frac{79}{12}\right)$

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) $1\frac{2}{3} - \frac{2}{7}$

$1\frac{14}{21} - \frac{6}{21}$

$1\frac{8}{21}$

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

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

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

$\frac{5}{6}$

d) $22\frac{1}{6} - 4\frac{5}{6}$

$21\frac{7}{6} - 4\frac{5}{6}$

$17\frac{2}{6}$ or $17\frac{1}{3}$ ($\frac{52}{3}$)

$22\frac{1}{6} - 4\frac{5}{6}$

$\frac{132}{6} - \frac{29}{6}$

$\frac{103}{6}$ ✓

$17\frac{2}{6}$

$17\frac{1}{3}$

$22 - 4$

18

17

17

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

can't be done

So need to borrow from whole

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

$\frac{7}{6} - \frac{5}{6}$

$17\frac{2}{6}$

$17\frac{1}{3}$

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

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

$1\frac{3}{8}$

$\frac{2}{1} \times 6 - \frac{5}{8}$

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

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

$\frac{13}{6} - \frac{8}{5}$

$\frac{65}{30} - \frac{48}{30}$

$\frac{17}{30}$

$2 - 1$

1

0

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

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

Need boor

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

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

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

- ex 1) $\frac{1}{6}$ **of 18**
  You can find 1/6 of 18 by dividing 18 by 6
  1/6 of 18 = 3

- ex 2) **1/5 of 45**
  Find 1/5 of 45 by dividing 45 by 5
  1/5 of 45 = 9

ex 3) **1/12 of 36**
Find 1/12 of 36 by dividing 36 by 12
1/12 of 36 = 3

You try

- $\frac{1}{2}$ of 26 = 13
- $\frac{1}{3}$ of 30 = 10
- $\frac{1}{6}$ of 60 = 10

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

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

You try

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

#1) **2/5 of 45**
1/5 of 45 =____
so 2/5 of 45 =____

#2) **7/9 of 63**
1/9 of 63 =____
so 7/9 of 63 =____

#3) **6/11 of 88**
1/11 of 88 =____
so 6/11 of 88 =____

$\frac{2}{5}$ of 45

Step1 first find $\frac{1}{5}$ of 45

Step2 then multiply Both unit fraction and answer by Numerator

$\frac{1}{5}$ of 45 = 9 (x2)

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

Ex2 $\frac{7}{9}$ of 63

$\frac{1}{9}$ of 63 = 7 (x7)

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

Ex3 $\frac{6}{11}$ of 88

Need to see.

$\frac{1}{11}$ of 88 = 8 (x6)

$\frac{6}{11}$ of 88 = 48

Find the value of each BUT show work

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

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

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 1/3 of 20 will not be a whole number

But you can estimate 1/3 of 21 = 7

Estimate the following:

(a) 1/8 of 50

Est. 1/8 of 48

6

(b) 5/7 of 36

Est. 1/7 of 35 = 5

5/7 of 35 = 5 x 5

= 25

(c) 9/10 of 72

Est. 1/10 of 70 = 7

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. 1/4 of 12 = 3
2. 1/5 of 35 = 7
3. 1/8 of 40 = 5
4. 1/3 of 45 = 15
5. 1/7 of 28 = 4
6. 3/7 of 28 = 3 x 4 = 12
7. 1/5 of 45 = 9
8. 2/5 of 45 = 9 x 2 = 18
9. 1/10 of 70 = 7
10. 3/10 of 70 = 3 x 7 = 21
11. 4/5 of 20
    1/5 of 20 = 4
    4/5 of 20 = 4 x 4 = 16

1/4 1/4 1/4

4	4	4				

12. 3/7 of 42
    1/7 of 42 = 6
    3/7 of 42 = 6 x 3 = 18
13. 3/4 of 100
    1/4 of 100 = 25
    3/4 of 100 = 3 x 25 = 75
14. 2/3 of 90
    1/3 of 90 = 30
    2/3 of 90 = 60
15. 3/5 of 100
    1/5 of 100 = 20
    3/5 of 100 = 20 x 3 = 60
16. 5/8 of 40
    1/8 of 40 = 5
    5/8 of 40 = 5 x 5 = 25
17. 2/3 of 600
    1/3 of 600 = 200
    2/3 of 600 = 2 x 200 = 400
18. 3/4 of 200
    1/4 of 200 = 50
    3/4 of 200 = 3 x 50 = 150
19. 4/5 of 200
    1/5 of 200 = 40
    4/5 of 200 = 4 x 40 = 160
20. 2/3 of 450
    1/3 of 450 = 150
    2/3 of 450 = 2 x 150 = 300

Attachments

Grade 8 Mental Math POWER BUILDER PDF.pdf