

WARM UP GRADE 8

Show work and find the product or the quotient

1)

a) 2.57×6.1

Think 257×61

$$\begin{array}{r} ^3 2.57 \\ \times ^4 6.1 \\ \hline + 15420 \\ \hline 15.677 \end{array}$$

b) $26.73 \div 0.9 = 29.7$

$$0.9 \overline{)26.73} \rightarrow 9 \overline{)267.3}$$

$$\begin{array}{r} 29.7 \\ -18 \downarrow \\ \hline 87 \\ -81 \downarrow \\ \hline 63 \\ -63 \\ \hline 0 \end{array}$$



2) Ted need 15 pieces of fabric that is 3.6 cm long to make ribbons for a local campaign . If the store has 46.8 cm of ribbon, will Ted have enough if he buys it?

Need 15×3.6

$$\begin{array}{r} ^1 15 \\ \times ^2 3.6 \\ \hline + 490 \\ \hline 54.0 \end{array}$$

Ted need 54.0 cm of ribbon.

46.8 cm is Not enough

b) How much more?

$$\begin{array}{r} ^4 54.0 \\ - ^1 46.8 \\ \hline 7.2 \end{array}$$

Need 7.2 cm more.

★ 1. Use Base Ten Blocks to divide. Record your work on grid paper.

a) $0.8 \div 0.1$ b) $1.2 \div 0.3$ c) $2.7 \div 0.6$ d) $2.2 \div 0.4$



WS is the Star Questions

a) 8 tenths $\div$ 1 tenth = 8

b) 12 tenths $\div$ 3 tenths = 4 (4 groups of 3 tenths)

c) 27 tenths $\div$ 6 tenths

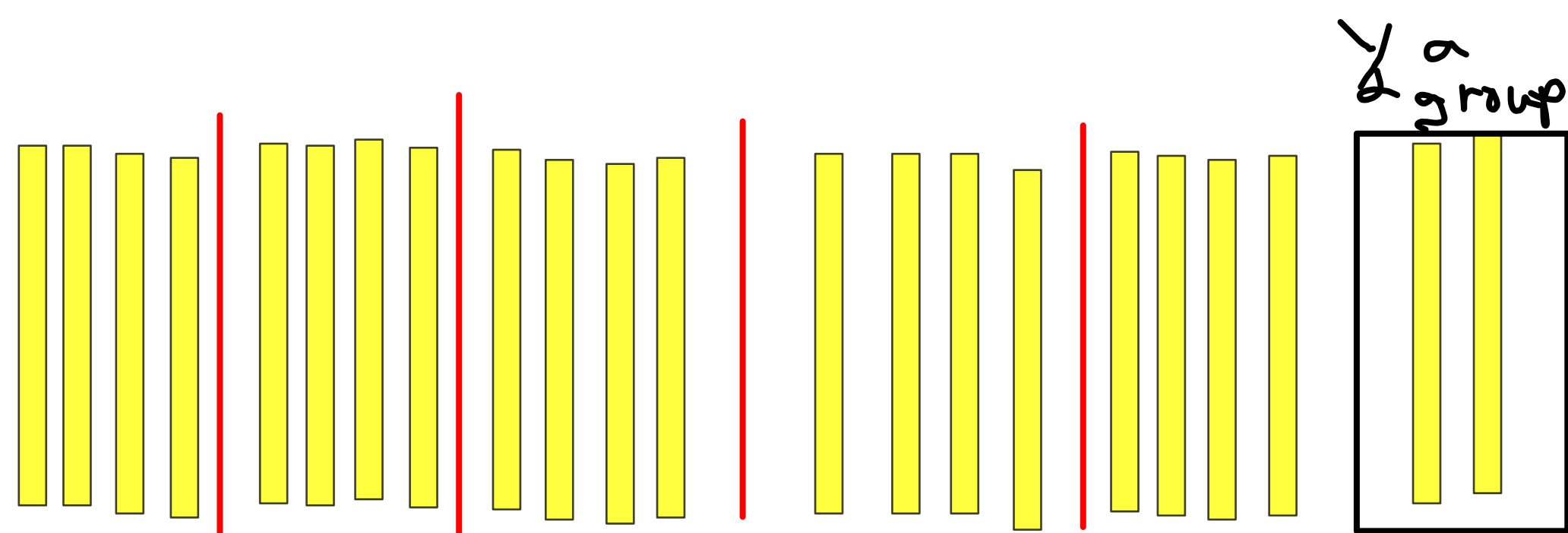
27 tenths $\div$ 3 tenths = 9 groups
so $4\frac{1}{2}$ groups of 6
4.5

d) 22 tenths $\div$ 4 tenths

20 tenths $\div$ 4 tenths = 5

24 tenths $\div$ 4 tenths = 6

so 22 tenths $\div$ 4 tenths = 5.5



2. Divide. Describe any patterns you see.

a) $124.5 \div 10$ 12.45 b) $124.5 \div 0.1$ 1245

$124.5 \div 100$ 1.245 $124.5 \div 0.01$ 12 450

$124.5 \div 1000$ 0.1245 $124.5 \div 0.001$ 124 500

$124.5 \div 10000$ $124.5 \div 0.0001$ 1 245 000

0.01245

3. Why do all these division statements have 6 as the answer?

- a) $30 \div 5$ b) $3.0 \div 0.5$ c) $0.3 \div 0.05$ d) $300 \div 50$

Which one is easiest to calculate? Explain.

They are basically the same but the decimals are in different places

a) $30 \div 5 = 6$

b) $3.0 \div 0.5 = 6$

c) $0.3 \div 0.05 \times 100$

d) $300 \div 50 = 6$

4. Use paper and pencil to divide.

a) $15 \div 0.6$

b) $224 \div 0.7$

c) $128 \div 0.8$

d) $216 \div 0.9$

$$\begin{array}{r} 0.6 \overline{) 15} \\ \underline{2.6} \\ 6 \overline{) 15.0} \\ \underline{12} \downarrow \\ 30 \\ \underline{30} \\ 0 \end{array}$$

$$\begin{array}{r} 0.7 \overline{) 224} \\ \underline{3.2} \\ 7 \overline{) 22.4} \\ \underline{21} \downarrow \\ 14 \\ \underline{14} \\ 0 \end{array}$$

$$\begin{array}{r} 0.8 \overline{) 128} \\ \underline{1.6} \\ 8 \overline{) 12.8} \\ \underline{8} \downarrow \\ 48 \\ \underline{48} \\ 0 \end{array}$$

d)

$$\begin{array}{r} 0.9 \overline{) 216} \\ \underline{2.4} \\ 9 \overline{) 21.6} \\ \underline{18} \downarrow \\ 36 \\ \underline{36} \\ 0 \end{array}$$

- ★ 7) Toonie is 0.2cm thick. How many toonies are in a stack of toonies 17.4cm high?

$$0.2 \overline{) 17.4} \rightarrow 2 \overline{) 17.4}$$

$$\begin{array}{r} 87 \\ 2 \overline{) 17.4} \\ \underline{-16} \\ 14 \\ \underline{-14} \\ 0 \end{array}$$

There is 87 toonies

- ★ 8) Area = 22.32 m^2
width = 0.8 m
length = ?

$$\text{length} = \text{Area} \div \text{width}$$

$$\text{length} = 22.32 \div 0.8$$

$$0.8 \overline{) 22.32} \rightarrow 8 \overline{) 223.2}$$

$$\begin{array}{r} 27.9 \\ 8 \overline{) 223.2} \\ \underline{-16} \\ 63 \\ \underline{-56} \\ 72 \\ \underline{-72} \\ 0 \end{array}$$

length is 27.9m

- ★ 9) 0.4kg cost \$1.34

- a) Estimate
So 0.4 is close to 0.5kg
 $\underline{2} \times 0.5 = 1 \text{ kg}$ thus Estimate cost
is 2×1.34
 ≈ 2.68

- b) How many 0.4kg are in 1kg?

$$0.4 \overline{) 1} \rightarrow 4 \overline{) 10.0}$$

$$\begin{array}{r} 2.5 \\ 4 \overline{) 10.0} \\ \underline{-8} \\ 20 \\ \underline{-20} \\ 0 \end{array}$$

$$2.5 \times \text{cost}$$

$$\begin{array}{r} 1.34 \\ \times 2.5 \\ \hline 670 \\ + 2680 \\ \hline 3350 \end{array}$$

$$0.4 \overline{) 1.34}$$

$$\begin{array}{r} 3.35 \\ 4 \overline{) 13.40} \\ \underline{-12} \\ 14 \\ \underline{-12} \\ 20 \\ \underline{-20} \\ 0 \end{array}$$

Actual cost for 1kg is \$3.35

- c) Suppose you spend \$10 on oranges. What mass did you buy?

$$\text{---} \times 1.34 = \$10 \text{ or}$$

use calculator

$$10 \div 1.34$$

$$= 7.462686567$$

groups of 0.4kg

$$7.462686567 \times 0.4 \text{ kg} = 2.98507$$

$$\downarrow$$

$$3 \text{ kg}$$

10) fabric length = 9.88m

Alex needs 14, 0.8m pieces

a) How many 0.8 pieces can Alex cut from the remnant?
 $9.88 \div 0.8$

$$0.8 \overline{) 9.88} \rightarrow \begin{array}{r} 12.35 \\ 8 \overline{) 98.80} \\ \underline{-8} \\ 18 \\ \underline{-16} \\ 28 \\ \underline{24} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

Alex can get 12.35 out of the fabric (Assume no waste)

b) Will Alex have all the fabric he needs?
 No, he will need more

c) How much more is needed?

$$\begin{array}{r} 14 \\ \times 0.8 \\ \hline \end{array}$$

11.2 needed

has 9.88

$$\begin{array}{r} 11.20 \\ - 9.88 \\ \hline 1.32 \end{array}$$

Need 1.32 m more

Method 2

or

$$\begin{array}{r} 14.00 \text{ piece} \\ - 12.35 \text{ have pie} \\ \hline 1.65 \text{ piece needed} \end{array}$$

$$\begin{array}{r} 1.65 \text{ \# of pieces} \\ \times 0.8 \text{ m length of} \\ \hline 1.320 \end{array}$$

Need 1.32 m more

d) Needs 14, 0.7m pieces of fabric

$$0.7 \overline{) 9.88} \rightarrow \begin{array}{r} 14.1112857 \\ 7 \overline{) 98.800000} \\ \underline{7} \\ 28 \\ \underline{28} \\ 08 \\ \underline{07} \\ 10 \\ \underline{7} \\ 30 \\ \underline{28} \\ 20 \\ \underline{14} \\ 60 \\ \underline{56} \\ 40 \\ \underline{35} \\ 50 \\ \underline{49} \\ 10 \end{array}$$

Remnant of 9.88m will do 14.1 piece
 So yes he will have enough if piece size is 0.7

Method 2

$$\begin{array}{r} 14 \\ \times 0.7 \\ \hline \end{array}$$

9.8 is needed

have 9.88 so yes

$$11) \quad \underline{\quad} \div \underline{\quad} = 0.12$$

↓

a) $\underline{3} \times 0.12 = \underline{0.36}$

so

Many answer

$$0.36 \div 3.0 = 0.12$$

b) $\underline{1.3} \times 0.12 =$

$$\begin{array}{r} 1.3 \\ \times 0.12 \\ \hline 26 \\ 130 \\ \hline 156 \end{array}$$

so

$$\boxed{0.156 \div 1.3 = 0.12}$$

12) Alicia earned \$346.88 in 37.5 hours
How much per hour?

$$37.5 \overline{) 346.88} \rightarrow 375$$

Alicia earns \$9.25 per hour

$$\begin{array}{r} 9.2501... \\ \underline{375} \\ 34688 \\ -3375 \\ \hline 938 \\ 750 \\ \underline{750} \\ 1880 \\ \underline{1875} \\ 500 \end{array}$$

★ 13) $237 \div 7 = 33.857$

$$\begin{array}{r} 33.857... \\ 7 \overline{) 237.000} \\ \underline{21} \\ 27 \\ \underline{21} \\ 60 \\ 56 \\ \underline{56} \\ 40 \\ \underline{35} \\ 50 \end{array}$$

a) $237 \div 0.7$

↓

$$2370 \div 7$$

↓

$$338.57$$

b) $237 \div 0.07$

↓

$$237 \div 7$$

$$33.857$$

c) $23.7 \div 7$

$$3.3857$$

d) $2370 \div 70$

$$237 \div 7 = 33.857$$

NAME _____

DATE _____

Solutions

Decimal Operations Review

1. $180.0 - 37.0 =$

$$\begin{array}{r} 180.0 \\ - 37.0 \\ \hline 143.0 \end{array}$$

2. $13.9 \times 0.75 =$

$$\begin{array}{r} 13.9 \\ \times 0.75 \\ \hline 695 \\ + 9730 \\ \hline 10.425 \end{array}$$

3. $497.7 \div 0.8 \Rightarrow 4977 \div 8$

$$\begin{array}{r} 622.125 \\ 8 \overline{) 4977.000} \\ \underline{48} \\ 17 \\ \underline{16} \\ 17 \\ \underline{16} \\ 10 \\ \underline{8} \\ 20 \\ \underline{16} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

4. $0.94 + 0.7 =$

$$\begin{array}{r} 0.94 \\ + 0.70 \\ \hline 1.64 \end{array}$$

5. $12.0 \times 76.0 =$

$$\begin{array}{r} 12.0 \\ \times 76.0 \\ \hline 744 \\ + 9680 \\ \hline 1042.4 \end{array}$$

6. $52.14 \div 0.5 =$

$$\begin{array}{r} 104.28 \\ 5 \overline{) 521.40} \\ \underline{5} \\ 02 \\ \underline{0} \\ 21 \\ \underline{20} \\ 140 \\ \underline{140} \\ 0 \end{array}$$

7. $6.4 - 5.5 =$

$$\begin{array}{r} 6.4 \\ - 5.5 \\ \hline 0.9 \end{array}$$

8. $14.3 + 0.7 =$

$$\begin{array}{r} 14.3 \\ + 0.7 \\ \hline 15.0 \end{array}$$

9. $1.35 \times 2.3 =$

$$\begin{array}{r} 1.35 \\ \times 2.3 \\ \hline 405 \\ + 2700 \\ \hline 3.105 \end{array}$$

10. $190.0 \times 6.3 =$

$$\begin{array}{r} 190.0 \\ \times 6.3 \\ \hline 570 \\ + 11400 \\ \hline 1197.0 \end{array}$$

11. $180.0 - 16.0 =$

$$\begin{array}{r} 180.0 \\ - 16.0 \\ \hline 164.0 \end{array}$$

12. $1.85 + 8.9 =$

$$\begin{array}{r} 1.85 \\ + 8.90 \\ \hline 10.75 \end{array}$$

Solutions

13. $258.0 \div 0.3 =$

$$\begin{array}{r} 866.\overline{6} \\ 3 \overline{) 2580.0} \\ \underline{-24} \\ 18 \\ \underline{-16} \\ 20 \\ \underline{-18} \\ 20 \\ \underline{-18} \\ 2 \end{array}$$

14. $846.4 \div 0.9 =$

$$\begin{array}{r} 940.\overline{4} \\ 9 \overline{) 8464.00} \\ \underline{-81} \\ 36 \\ \underline{-36} \\ 040 \\ \underline{-36} \\ 40 \\ \underline{-36} \\ 4 \end{array}$$

15. $1470.0 \div 0.6 =$

$$\begin{array}{r} 2450. \\ 6 \overline{) 14700.} \\ \underline{-12} \\ 27 \\ \underline{-24} \\ 30 \\ \underline{-30} \\ 00 \\ \underline{-00} \\ 0 \end{array}$$

16. $0.31 + 0.81 =$

$$\begin{array}{r} 0.31 \\ + 0.81 \\ \hline 1.12 \end{array}$$

17. $5.8 + 0.39 =$

$$\begin{array}{r} 5.80 \\ + 0.39 \\ \hline 6.19 \end{array}$$

18. $79.0 + 0.47 =$

$$\begin{array}{r} 79.00 \\ + 0.47 \\ \hline 79.47 \end{array}$$

20. $123.0 - 79.0 =$

$$\begin{array}{r} 123.0 \\ - 79.0 \\ \hline 44.0 \end{array}$$

21. $6.0 \times 9.6 =$

$$\begin{array}{r} 6.0 \\ \times 9.6 \\ \hline 57.6 \end{array}$$

Order of Operations

Does it matter what order we add number in? (Is $7 + 9$ the same as $9 + 7$)

No, you can add in any order.

Does it matter what order we subtract numbers? (Is $9 - 7$ the same as $7 - 9$)

Yes it matters what order we subtract.

Does it matter what order we multiply numbers (Is 4×6 the same as 6×4)

No, you can multiply in any order.

Does it matter what order you divide numbers (Is $50 \div 3$ the same as $3 \div 50$)

Yes the order matters with division.

$\div$

$\div$

So what if you have a question that contains more than one operation, is there a set order you have to do the question in? $3 + 4 \times 6 - 2$?

Yes there is definitely a set order you have to do the operations in.

First, you have to do anything that is inside brackets.

Then you simplify any exponents.

Next you multiply or divide in the order they occur from left to right (that is if multiplication is first you do the multiplication, if division comes first you do the division)

Finally, you add or subtract in the order they occur from left to right (that is if the addition comes first, add, if the subtraction comes first, subtract)

$$3 + 4 \times 6 - 2$$

$$3 + 24 - 2$$

$$27 - 2 = 25$$

~~Sometimes~~ students use the word BEDMAS to help them remember the order

B - Brackets

E - Exponents

DM - Multiplication and Division in the order they occur

AS - Addition and Subtraction in the order they occur

B - Brackets

E - Exponents

DM - Multiplication and Division in the order they occur

AS - Addition and Subtraction in the order they occur

Order of operations with Whole Numbers

~~B~~EDMAS

6x

$$\begin{aligned} 1) \quad & 36 \div (4 + 5) \\ &= 36 \div (9) \\ &= \boxed{4} \end{aligned}$$

~~B~~EDMAS

$$\begin{aligned} 4) \quad & (15 - 6) \times 2 \\ &= (9) \times 2 \\ &= \boxed{18} \end{aligned}$$

$$\begin{aligned} 2) \quad & (9 - 3) \times 8 \\ &= (6) \times 8 \\ &= \boxed{48} \end{aligned}$$

$$\begin{aligned} 5) \quad & (9 + 3) \div 4 \div (8 - 5) \\ &= (12) \div 4 \div (8 - 5) \\ &= (12) \div 4 \div 3 \\ &= 3 \div 3 \\ &= \boxed{1} \end{aligned}$$

$$\begin{aligned} 3) \quad & 15 - 6 \times 2 + 10 \\ &= 15 - 12 + 10 \\ &= 3 + 10 \\ &= \boxed{13} \end{aligned}$$

$$\begin{aligned} 6) \quad & 20 + 7 \times 3 - (2 + 6) \\ &= 20 + 7 \times 3 - 8 \\ &= 20 + 21 - 8 \\ &= 41 - 8 \\ &= \boxed{33} \end{aligned}$$

Order of Operations with Decimals

still use ~~B~~EDMAS

No calculators

$$\begin{aligned} 1) & \underbrace{6 \times 15.9} + 36.4 \div 4 \\ &= 95.4 + \underbrace{36.4 \div 4} \\ &= 95.4 + 9.1 \\ &= \boxed{104.5} \end{aligned}$$

Step 1 | multiply 6×15.9

$$\begin{array}{r} ^3 ^5 \\ 15.9 \\ \times ^6 \\ \hline 95.4 \end{array}$$

Step 2 | Divide $36.4 \div 4$

$$\begin{array}{r} 9.1 \\ 4 \overline{) 36.4} \\ \underline{-36} \downarrow \\ 0.4 \\ \underline{-4} \\ 0 \end{array}$$

Step 3 | Add (line up .)

$$\begin{array}{r} 95.4 \\ + 9.1 \\ \hline 104.5 \end{array}$$

Order of Operations with Decimals

still use ~~B~~EDMAS

No calculators

$$\begin{aligned} 1) & \quad 17.92 \div 0.7 + 2.5 \times 3 \\ &= 25.6 + 2.5 \times 3 \\ &= 25.6 + 7.5 \\ &= \boxed{33.1} \end{aligned}$$

show scrap work off to the side

Step 1 | Divide $17.92 \div 0.7$

$$\begin{array}{r} 25.6 \\ 0.7 \overline{) 17.92} \rightarrow 7 \overline{) 179.2} \\ \underline{-14} \\ 39 \\ \underline{-35} \\ 42 \\ \underline{-42} \\ 0 \end{array}$$

Step 2 | multiply 2.5×3

$$\begin{array}{r} 2.5 \\ \times 3 \\ \hline 7.5 \end{array}$$

Step 3 | Add (line up.)

$$\begin{array}{r} 25.6 \\ + 7.5 \\ \hline 33.1 \end{array}$$

Class/Homework

Start to work on this today BUT we will work on it again tomorrow.

Sheet 30
all questions (No calculators)

Test 2 days time on Integer Multiplication
& Decimal Operations

