

$$\begin{array}{r} 6.\overset{\cdot}{1}2 \\ \times 2.57 \\ \hline 122400 \\ 30600 \\ 4284 \\ \hline 15.7284 \end{array}$$

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) $2.2 \div 0.4$

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

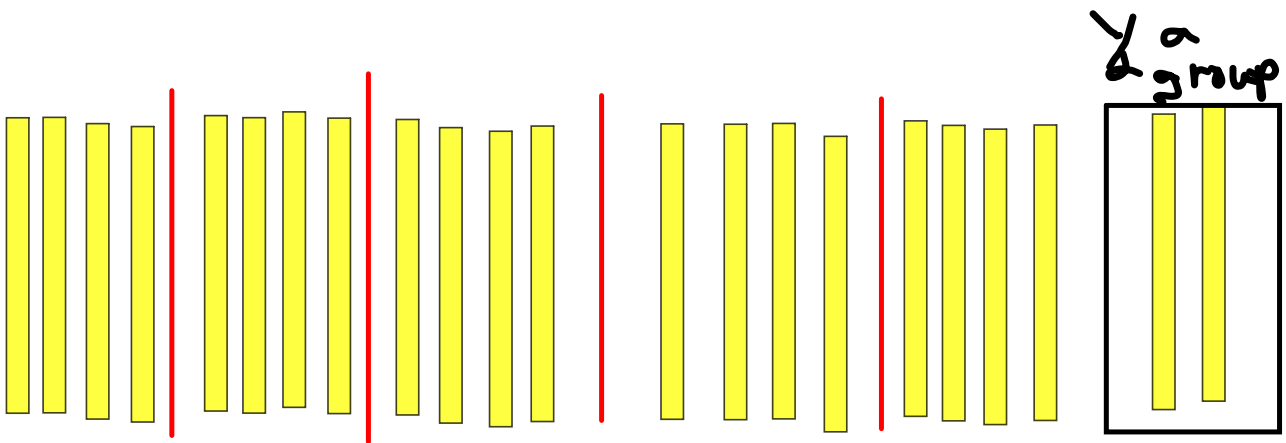
so $4\frac{1}{2}$ groups of 6
4.5

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 $124.5 \div 0.01$ 12450
 $124.5 \div 1000$ 0.1245 $124.5 \div 0.001$ 124500
 $124.5 \div 10000$ 0.01245 $124.5 \div 0.0001$ 1245000

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) $216 \div 0.9$

a) $0.6 \overline{) 15}$
 $\underline{12}$ 6
 30
 $\underline{30}$
 0

b) $0.7 \overline{) 224}$
 $\underline{21}$ 32
 14
 $\underline{14}$
 0

c) $0.8 \overline{) 128}$
 $\underline{8}$ 16
 8
 $\underline{8}$
 0

d) $0.9 \overline{) 216}$
 $\underline{18}$ 24
 36
 $\underline{36}$
 0

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

$$0.2 \overline{) 17.4} \rightarrow 2 \overline{) 174.0}$$

$$\begin{array}{r} 87 \\ -16 \downarrow \\ \hline 14 \\ -14 \\ \hline 0 \end{array}$$

There is 87 toonies

8) Area = 22.32m²
width = 0.8m
length = ?

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

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

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

$$\begin{array}{r} 27.9 \\ -16 \downarrow \\ \hline 63 \\ -56 \downarrow \\ \hline 72 \\ -72 \\ \hline 0 \end{array}$$

length is 27.9m

9) 0.4kg cost \$1.34

a) Estimate 0.4 is close to 0.5kg
So $2 \times 0.5 = 1\text{kg}$ thus estimate cost is $2 \times 1.34 \approx 2.68$

b) How many 0.4kg are in 1kg?

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

$$\begin{array}{r} 2.5 \\ -8 \\ \hline 20 \\ -20 \\ \hline 0 \end{array}$$

2.5 x cost

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

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

$$10 \div 1.34 = 7.462686567$$

for 0.4kg
Groups of 0.4kg

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

3kg

10) fabric length = 9.88m
 Alex needs 14, 0.8m pieces

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

$$0.8 \overline{)9.88} \rightarrow 8 \overline{)98.80}$$

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

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

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

$$\begin{array}{r} 10.11 \\ 11.26 \\ - 9.88 \\ \hline 1.32 \end{array}$$

Need 1.32 m more

Method 2

or

$$\begin{array}{r} 19.60 \text{ piece} \\ - 12.35 \text{ have piece} \\ \hline 1.65 \text{ piece needed} \end{array}$$

$$\begin{array}{r} 5.4 \text{ # of pieces} \\ 1.65 \text{ length of} \\ \times 0.8 \text{ m} \\ \hline 13.20 \end{array}$$

Need 1.32 m more

d) Needs 14, 0.7m pieces of fabric

$$0.7 \overline{)9.88} \rightarrow 7 \overline{)98.8000}$$

$$\begin{array}{r} 14.112857 \\ 7 \overline{)98.8000} \\ \underline{7} \\ 28 \\ \underline{28} \\ 0800 \\ \underline{0700} \\ 1000 \\ \underline{0700} \\ 3000 \\ \underline{2800} \\ 2000 \\ \underline{1400} \\ 6000 \\ \underline{5600} \\ 4000 \\ \underline{3500} \\ 500 \\ \underline{4900} \\ 10 \end{array}$$

Remnant of 9.88 will do 14.11 piece
 So yes he will have enough if piece size is 0.7

Method 2

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

9.88 → is needed have 9.88 so yes

11) $\frac{\quad}{\quad} \div \frac{\quad}{\quad} = 0.12$
 \downarrow

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

so

Many answer

$0.36 \div 3 = 0.12$

b) $\frac{1.3}{\quad} \times 0.12 =$

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

so

$0.156 \div 1.3 = 0.12$

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

$$\begin{array}{r} 9.2501\dots \\ 375 \overline{) 3468.800} \\ \underline{-3375} \\ 938 \\ \underline{750} \\ 1880 \\ \underline{1875} \\ 500 \\ \underline{500} \\ 000 \end{array}$$

13) $237 \div 7 = 33.857$

$$\begin{array}{r} 33.857\dots \\ 7 \overline{) 237.000} \\ \underline{21} \\ 27 \\ \underline{21} \\ 60 \\ \underline{56} \\ 40 \\ \underline{35} \\ 50 \\ \underline{50} \\ 000 \end{array}$$

a) $237 \div 0.7$

\downarrow

$2370 \div 7$

\downarrow

338.57

b) $237 \div 0.07$

\downarrow

$237 \div 7$

33.857

c) $23.7 \div 7$

3.3857

d) $2370 \div 70$

$237 \div 7 = 33.857$

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.

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)

$$\begin{array}{r} 3 + 4 \times 6 - 2 \\ 3 + \underline{24} - 2 \\ \underline{27} - 2 = 25 \end{array}$$

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

B - Brackets

~~X~~ - Exponents

DM - Multiplication and Division in the order they occur *in the question*

AS - Addition and Subtraction in the order they occur

Order of operations with Whole Numbers

BEDMAS

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

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

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

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

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

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

Order of Operations with Decimals

still use **BEDMAS**

No calculators

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

The handwritten work on the right side of the page shows three distinct mathematical operations, each enclosed in a bracket on the left side:

- Top operation:** A multiplication problem 15.9×6 . The numbers are written in red. Above the 5 is a blue '5' and above the 9 is a blue '9'. A purple arrow points from the 9 to the 5, and another purple arrow points from the 6 to the 9. The result is 95.4 , with the 9 and 5 in red and the 4 in green.
- Middle operation:** A long division problem $36.4 \div 4$. The divisor 4 is in green. The dividend 36.4 is in green. The quotient 9.1 is in green. A blue arrow points from the 4 to the 9. A red arrow points from the 4 to the 1. The remainder is 0.
- Bottom operation:** An addition problem $95.4 + 9.1$. The numbers are in purple. The result is 104.5 , with the 104 in purple and the 5 in green.

Order of Operations with Decimals

still use **BEDMAS**

No calculators

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

show scrap work off to the side

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

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

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

Class/Homework

Sheet 30

1, 3, 8, 12 TOP
1, 2 BOTTOM

all questions (No calculators)

Test Friday

Sheet 30 (Bedmass with whole numbers and Decimals).docx