



Warm up Grade 6



Date: \_\_\_\_\_

1) Without multiplying, choose the correct product for each multiplication question. Explain your choice each time. Multiply to check

Question	Possible Products		
a) $0.072 \times 8$	5.76	0.0576	<u>0.576</u>
b) $0.365 \times 4$	1.46	<u>0.146</u>	0.0146

Answer need 3# after decimal

3# after decimal

3# after decimal

On the test

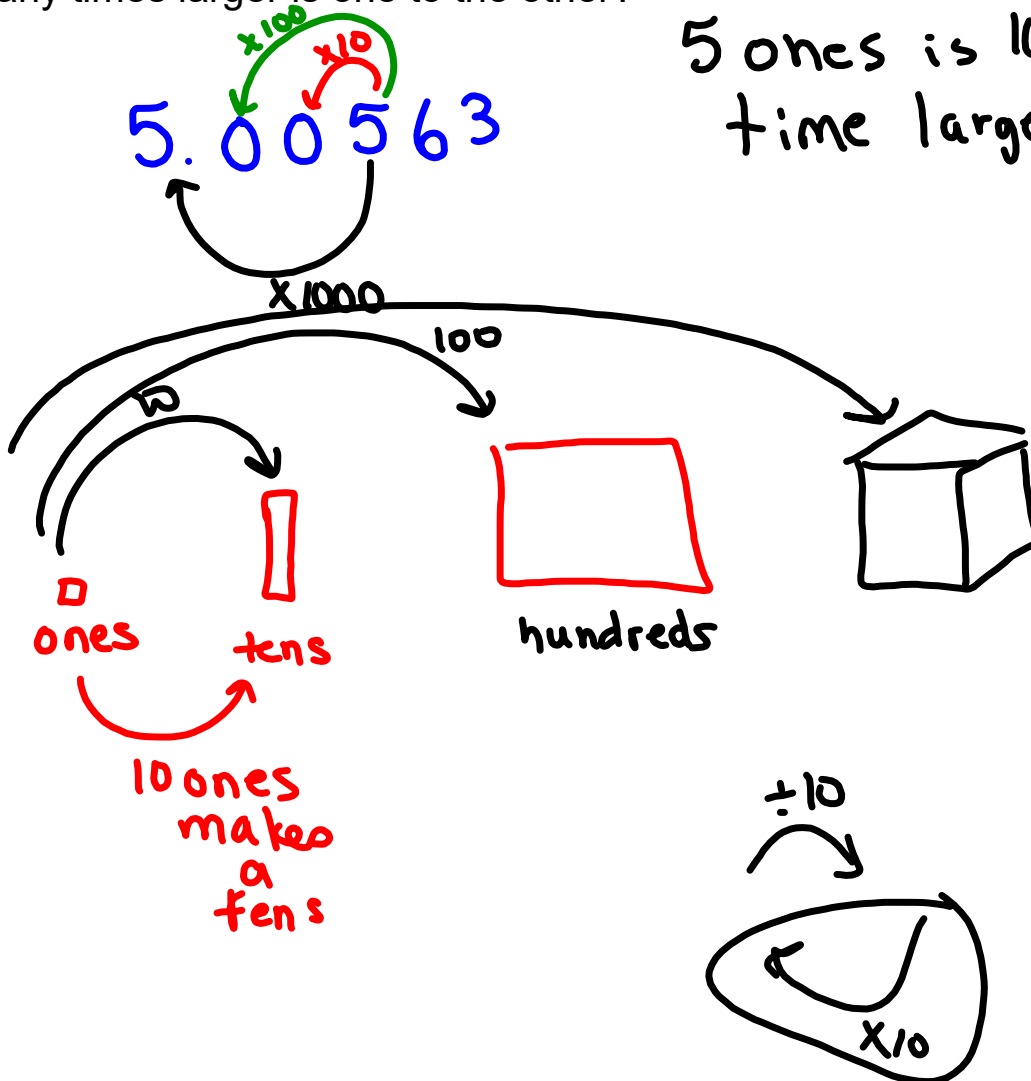
2) Given 5.00563, what are the place values for each "5" and how

ones

thousandths

many times larger is one to the other?

5 ones is 1000  
time larger



Practice

Homework Solutions

1. Use Base Ten Blocks.  
Multiply.

- a)  $0.6 \times 4$       b)  $0.12 \times 3$       c)  $0.21 \times 2$   
d)  $0.34 \times 5$       e)  $0.215 \times 3$       f)  $0.408 \times 2$

a)  $\overset{\cdot}{0}.6$       6 tenths  $\times 4$   
 $\begin{array}{r} \times 4 \\ \hline 2.4 \end{array}$       is 24 tenths  
6  $\times 4 = 24$

or estimate

0.6 is close to 1 whole

1  $\times 4 = 4$  so product is close to 4

but over estimate.

b)  $0.12$       0.12 is close to 1 tenth  
 $\begin{array}{r} \times 3 \\ \hline 0.36 \end{array}$

estimate

0.12 is close to 1 tenth

1 tenth  $\times 3 = 3$  tenths

so product is close to 0.3

but under estimate.

c)  $0.21$       estimate  
 $\begin{array}{r} \times 2 \\ \hline 0.42 \end{array}$       0.21 is close to 2 tenths  
2 tenths  $\times 2 = 4$  tenths

so product is close to 0.4

but under estimate.

d)  $0.\overset{\cdot}{3}4$       estimate  
 $\begin{array}{r} \times 5 \\ \hline 1.7\overset{\cdot}{6} \end{array}$       0.34 is close to 3 tenths  
3 tenths  $\times 5 = 15$  tenths

so product is close to

1.5 but under estimate.

e)  $0.2\overset{\cdot}{1}5$       estimate  
 $\begin{array}{r} \times 3 \\ \hline 0.645 \end{array}$       0.215 is close to 2 tenths  
2 tenths  $\times 3 = 6$  tenths

so product is close to 0.6

but under estimate.

~~6~~  $0.4\overset{\cdot}{0}8$       estimate  
 $\begin{array}{r} \times 8 \\ \hline 3.216 \end{array}$       0.408 is close to 4 tenths  
4 tenths  $\times 8 = 32$  tenths

so product is close to

3.2 but under estimate.

2. Copy this place-value chart.  
Multiply. Record each product in the chart.

	Ones	Tenths	Hundredths	Thousandths	Ten-Thousandths
a)	0	0	3	5	
b)	3	7	8		
c)	0	1	4	5	

- a)  $0.005 \times 7$       b)  $0.42 \times 9$       c)  $0.029 \times 5$   
d)  $0.0328 \times 9$       e)  $0.276 \times 6$       f)  $0.1036 \times 8$

a)  $0.005$   
 $\begin{array}{r} \times 7 \\ \hline 0.035 \end{array}$        $5 \times 7 = 35$

b)  $0.42$       4 tenths  $\times 9$  is 36 tenths  
 $\begin{array}{r} \times 9 \\ \hline 3.78 \end{array}$       3.6

c)  $0.029$   
 $\begin{array}{r} \times 5 \\ \hline 0.145 \end{array}$        $\overset{\cdot}{2}9$   
 $\begin{array}{r} \times 5 \\ \hline 145 \end{array}$

3 hundredths  $\times 5$  is 15 hundredths

so close to = 0.15

d)  $0.0328 \times 9$        $\overset{\cdot}{3}28$       3 hundredths  $\times 9$   
is 27 hundredths  
close to 0.27  
 $\begin{array}{r} \times 9 \\ \hline 3052 \end{array}$       = 0.3052

e)  $0.276 \times 6$   
= 1.956  
 $\begin{array}{r} \times 6 \\ \hline 1956 \end{array}$        $\overset{\cdot}{7}276$

close to 3 tenths  $\times 6$  is 18 tenths

close to 1.8 tenths

f)  $0.48 \times 2$   
= 0.96  
 $\begin{array}{r} \times 2 \\ \hline 96 \end{array}$        $\overset{\cdot}{4}8$

close to 5 tenths  $\times 2$  is 10 tenths

close to 1.0 tenths

**Homework Solutions**

3. Multiply. Describe your strategies.

- a)  $0.9 \times 3$       b)  $0.25 \times 6$       c)  $0.018 \times 4$   
 $0.09 \times 3$        $0.025 \times 6$        $0.0018 \times 4$   
 $0.009 \times 3$        $0.0025 \times 6$        $0.00018 \times 4$

What patterns do you see?

- a.  $9 \times 3 = 27$  (est)  
 $0.9 \times 3 = 2.7$   
 $0.09 \times 3 = 0.27$   
 $0.009 \times 3 = 0.027$

b.  $25 \times 6 = 20 \times 6 = 120$   
 $5 \times 6 = \frac{30}{150}$

$0.25 \times 6 = 1.50$   
 $0.025 \times 6 = 0.150$   
 $0.0025 \times 6 = 0.0150$

4. Shona cut a ribbon into 8 equal lengths to finish sewing her Fancy Shawl Regalia. Each piece was 0.158 m long.

- a) How long was the ribbon before Shona cut it?  
 b) How many cuts did she make?

4a)  $0.158 \text{ m} \times 8$   
 $= 1.264 \text{ m}$

$$\begin{array}{r} 16 \\ 158 \\ \times 8 \\ \hline 1264 \end{array}$$



Woman Dancing an Aboriginal Fancy Dance

$0.158$  close to  $0.2$  (2 tenths)  
 $2 \text{ tenths} \times 8$  is  $16 \text{ tenths}$  (1.6)

b) 7 cuts gives 8 pieces

Juice	Vitamin C per glass (g)
Pure Orange Juice	0.054
Pure Apple Juice	0.0009

- a) Stefan drinks a glass of pure orange juice. How much Vitamin C does Stefan get from orange juice each week?  
 b) Stefan went to Sasamat Outdoor Centre's overnight camp for one week. He drank a glass of pure apple juice each morning with his breakfast. How much Vitamin C did Stefan get from apple juice that week?

a) 1 week has 7 days  
 vitamin C in 1 glass is 0.054 g

$$\begin{array}{r} 2 \\ 54 \\ \times 7 \\ \hline 378 \end{array}$$

$0.054 \times 7$   
 $= 0.378$

$0.05$  is close to 1 tenth  $0.1$

1 tenth  $\times 7$  is 7 tenths

$0.1 \times 7 = 0.7$

over estimate

Stefan gets 0.378 g of vitamin C each week from orange juice

Apple juice

b) 1 week has 7 days  
 vitamin C in 1 glass is 0.0009 g

$$\begin{array}{r} 9 \\ \times 7 \\ \hline 63 \end{array}$$

$0.0009 \times 7$   
 $= 0.0063$

$0.0009$  is close to 1 thousandths ( $0.001$ )

1 thousandths  $\times 7$  is 7 thousandths

$0.001 \times 7 = 0.007$

over estimate

Stefan gets 0.0063 g of vitamin C that week from apple juice



6. Without multiplying, choose the correct product for each multiplication question. Explain your choice each time. Multiply to check.

**Homework Solutions**

Question	Possible Products		
a) $0.063 \times 9$	5.67	0.567 ✓	0.0567
b) $0.349 \times 7$	2.443 ✓	0.2443	0.024 43
c) $0.0078 \times 5$	0.39	0.039 ✓	0.0039

a) 0.06 is close to 0.1  
 $0.1 \times 9$  is 0.9

b) 0.349 is close to  
 3 tenths  $\times 7$   
 $= 21$  tenths  
 2.1

c) 0.0078  
 is close to 0.01  
 (1 hundredths)  
 1 hundredths  $\times$   
 5 is 5  
 hundredths  
 close to 0.05



7. Multiply as you would whole numbers. Estimate to place the decimal point.

- a)  $0.359 \times 5$       b)  $0.0112 \times 9$       c)  $0.083 \times 4$   
 d)  $0.89 \times 6$       e)  $0.0063 \times 7$       f)  $0.097 \times 8$

a.  $359 \times 5 =$   $300 \times 5 = 1500$   
 $50 \times 5 = 250$   
 $9 \times 5 = \underline{45}$   
 1795

$0359 \times 5 = 1.795$

b.  $0.0112 \times 9 =$   $100 \times 9 = 900$   
 $10 \times 9 = 90$   
 $2 \times 9 = \underline{18}$   
 1008

$0.0112 \times 9 = 0.1008$

c)  $0.083 \times 4$

$80 \times 4 = 320$   
 $3 \times 4 = 12$   
 432

$0.083 \times 4 = 0.432$

d)  $0.89 \times 6$

$80 \times 6 = 480$

$9 \times 6 = \underline{+54}$

$0.89 \times 6 = \underline{534}$   
 5.34

8. A student said that since  $11 \times 5 = 55$ , then  $0.0011 \times 5$  is 0.55.

Is the student's reasoning correct?  
 Give reasons for your answer.

No since 11 ten-thousandths

so

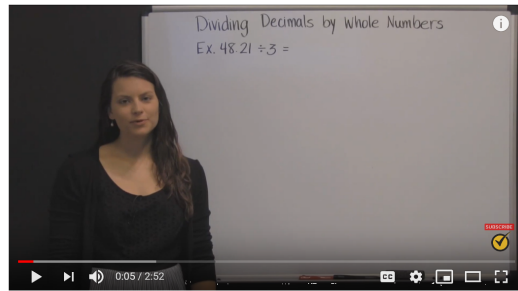
11 ten-thousandths  $\times 5$

is 55 ten-thousandths

$\underline{\quad} \cdot \underline{\quad} \underline{\quad} \underline{\quad} \underline{5} \underline{5}$

**Reflect**

How can you use your knowledge of multiplication facts to help you multiply a decimal less than 1 by a 1-digit whole number?



Dividing Decimals by Whole Numbers

Decimal ÷ whole  
 $2.7 \div 3$

This is the one I use



Dividing decimals by a whole number

27.76  
Dividend

÷ 8  
Divisor

Very similar to long division.

- Divide the decimal number by considering it as a whole number by the given whole number.

$$8 \overline{) 27.76}$$

Always estimate to see if the quotient is reasonable

- Mark the decimal point in the quotient such that it has the same number of decimal places as in the decimal number (dividend).

$$27.76 \div 8 = 3.47$$

$$\begin{array}{r}
 3.47 \\
 8 \overline{) 27.76} \\
 \underline{-24} \phantom{0} \\
 37 \\
 \underline{-32} \\
 56 \\
 \underline{-56} \\
 0
 \end{array}$$

Then divide normally

Try this one






No remainders but decimal parts

Can always add zeros to the end of decimals, and it does not change the number.

$$\begin{array}{r}
 9.467 \div 5 \\
 1.8934 \\
 5 \overline{) 9.4670} \\
 \underline{-5} \phantom{0} \\
 44 \\
 \underline{-40} \\
 46 \\
 \underline{-45} \\
 7 \\
 \underline{-15} \\
 20 \\
 \underline{-20} \\
 0
 \end{array}$$

You Try

Divide the following, with long division.

 **D**ivide ✓  
 **M**ultiply ✓  
 **S**ubtract ✓  
 **B**ring Down ✓  
 **R**epeat ✓

a)  $49.504 \div 4 = 12.376$

$$\begin{array}{r}
 12.376 \\
 4 \overline{) 49.504} \\
 \underline{-4} \phantom{0} \phantom{0} \phantom{0} \\
 09 \phantom{0} \phantom{0} \\
 \underline{-8} \phantom{0} \phantom{0} \\
 15 \phantom{0} \\
 \underline{-12} \phantom{0} \\
 30 \\
 \underline{-28} \\
 24 \\
 \underline{-24} \\
 0
 \end{array}$$

b)  $35.95 \div 2$

$$\begin{array}{r}
 17.975 \\
 2 \overline{) 35.950} \\
 \underline{-2} \phantom{0} \phantom{0} \phantom{0} \\
 15 \phantom{0} \phantom{0} \\
 \underline{-14} \phantom{0} \\
 19 \phantom{0} \\
 \underline{-18} \phantom{0} \\
 15 \\
 \underline{-14} \\
 10 \\
 \underline{-10} \\
 0
 \end{array}$$

METHOD 2 (I pick method...)

$$24.72 \div 6$$

Uses multiples you know

Repeated subtraction of multiples of 6.

Record off to the side the multiple

6	2472	
	- 600	100
	1872	
	- 600	100
	1272	
	- 600	100
	672	
	- 600	100
	72	
	- 60	10
	12	
	- 12	2
	0	
		412

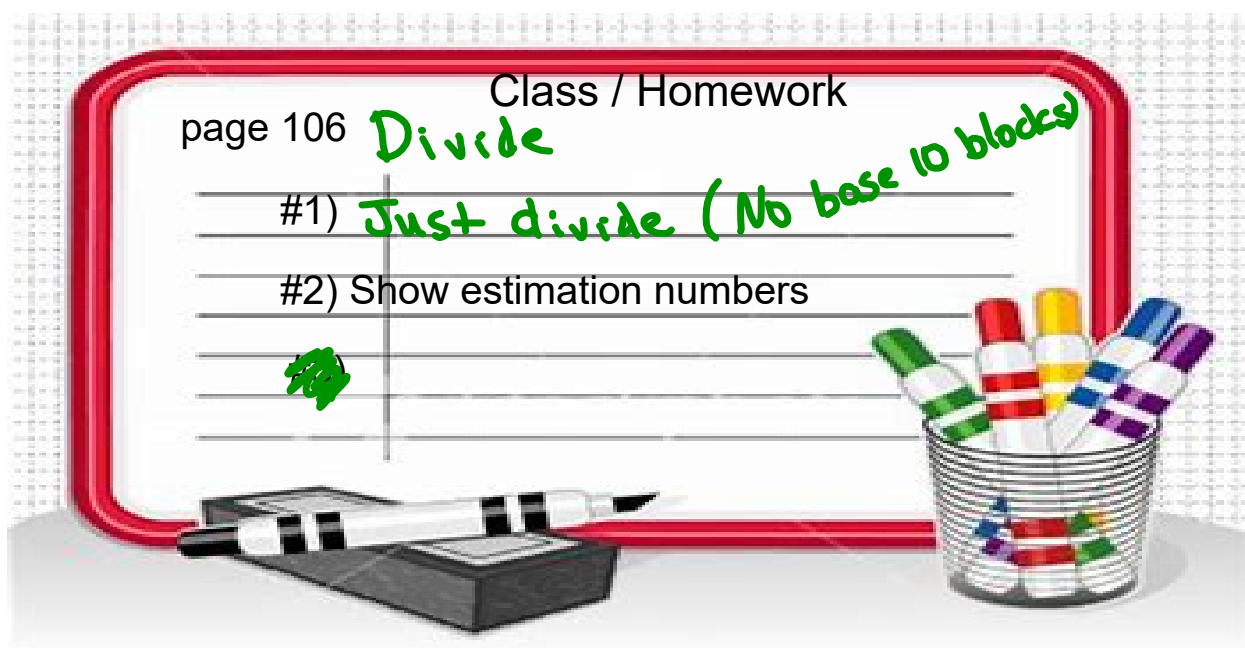
Now use estimation to determine where the decimal is placed.

$$24 \div 6 = 4$$

so

$$24.72 \div 6 = 4.12$$





**Practice**

1. Use Base Ten Blocks to divide.

a)  $6.25 \div 5$

b)  $4.24 \div 4$

c)  $1.68 \div 3$

d)  $3.9 \div 6$

2. The decimal point is missing in each quotient.

Use estimation to place each decimal point.

★  $8.2 \div 2 = 41$

★  $3.81 \div 3 = 127$

c)  $1.992 \div 8 = 249$

★  $9.45 \div 5 = 189$

e)  $11.916 \div 9 = 1324$

★  $62.8 \div 8 = 785$

3. Estimate each quotient. Which strategies did you use?

a)  $26.34 \div 8$

b)  $15.27 \div 3$

c)  $2.304 \div 4$

d)  $5.8 \div 8$

e)  $8.088 \div 6$

f)  $2.316 \div 2$



4. Divide. Multiply to check your answers.

★  $27.025 \div 5$   
d)  $16.072 \div 8$

b)  $3.42 \div 6$   
★  $30.9 \div 5$

★  $7.735 \div 7$   
f)  $3.438 \div 6$

Step 1: Estimate

$$25 \div 5 = 5$$

Step 3:

$$27.025 \div 5 = 5.405$$

Step 2:  
Actual  
Answer

5	27025	5 x 4000
	20000	
-	7025	5 x 1000
	5000	
-	2025	5 x 400
	2000	
-	25	5 x 5
	25	
-	0	

**5405**

Step 4:  
Check by Multiplying

$$5.405 \times 5 = 27.025$$



5. Estimate to choose the correct quotient for each division question.

	Question	Possible Quotients		
a)	$8.124 \div 6$	1.354	13.54	135.4
b)	$37.92 \div 3$	0.1264	1.264	12.64
c)	$7.624 \div 8$	0.953	9.53	95.3

6. Aqpiq Peter is a young Inuit speed skater from Nunavut. He is one of 3 First Nations athletes being showcased for the 2010 Vancouver Olympics. At practice, Aqpiq skated 2.75 km in 5 min. About how far did Aqpiq skate in 1 min?





7. Eric cycled 2.25 km in 5 min.  
 Josie cycled 2.72 km in 8 min.  
 Who travelled farther in 1 min?  
 Show your work.



8. Sharma paid \$58.50 to board her cat at a kennel in Yellowknife for 5 days.  
 Her friend Miles paid \$12.50 each day to board his cat at a different kennel for 5 days.  
 Who paid the lesser amount?  
 Explain how you know.



9. The decimal point in some of these quotients is in the wrong place. Identify the mistakes, then write each quotient with the decimal point in the correct place.

- a)  $44.8 \div 8 = 0.56$                       b)  $14.805 \div 5 = 2.961$   
 c)  $3.15 \div 6 = 5.25$                       d)  $8.127 \div 1 = 0.8127$



10. A student divided 1.374 by 4 and got 3.435.  
 a) Without dividing, how do you know the answer is incorrect?  
 b) What do you think the student did wrong?  
 c) What is the correct answer? How can you check?

11. Write a story problem that can be solved by dividing 14.28 by 3.  
 Trade problems with a classmate and solve your classmate's problem.

13. In good weather, Hannah rides her bike to school and back each day.  
 One week, Hannah rode her bike on 4 days.  
 That week, Hannah rode 10.832 km in total.  
 The following week, she rode her bike all 5 days.  
 How far did Hannah ride the second week?

