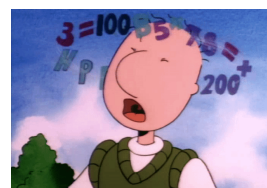Warm up Grade 6

Date: Nov. 25

1) Estimate the product or quotient. Which strategy did you use? Tell if your estimation is an overestimation or an underestimation.

a) 17.27 x 4 ≈ 80

$$20 \times 4$$
$$\cdot \quad 80$$

Bench-mark

Over estimate

b) 65.21 ÷ 5 ≈ 13

$$65 \div 5 = 13$$

Under estimate

Homework Solutions

Practice ·

1. Estimate each product or quotient. Which strategies did you use?
   Tell if your estimate is an overestimate or an underestimate.
   a) 7.01×9 **b)** 3.8×7 **c)** 11.85×5 **d)** 19.925×4
   e) $9.8 \div 5$ **f)** $12.31 \div 2$ **g)** $56.093 \div 7$ **h)** $225.3 \div 5$

a) Estimate

   7 x 9

= 63

Under estimation

Front end

b) Estimate

   3 x 7

= 21

Under estimation

Front end

    or

b) Estimate

   4 x 7

= 28

over estimation

bench mark

c) Estimate

   11 x 5

=55

Under estimation

Front end

   or

c) Estimate

   12 x 5

= 60

over estimation

bench mark

d) Estimate

   20 x 4

= 80

over estimation

bench mark

e) $9.8 \div 5$

Estimation

   $10 \div 5$

= 2

Bench mark

over estimation

f) $12.31 \div 2$

Estimation

   $12 \div 2$

= 6

Bench mark

under estimation

g) $56.093 \div 7$

Estimation

   $56 \div 7$

= 8

front end

under estimation

h) $225.3 \div 5$

Estimation

   $225 \div 5$

= 8

benchmark

under estimation

Homework Solutions

2. Waldo paid $29.85 for 3 admission tickets to the Calgary Tower.
   Estimate the cost of one admission ticket.

$30 ÷ 3 = $10

Each ticket is about $10. (Over estimate since 30 is larger than 29.85)

3. A pair of ice cleats for ice fishing costs $14.89.
   About how much will 6 pairs of ice cleats cost?
   How did you find out?

$14.89 is about $15

$15 x 6 = $90

same as (Double and half mental math)

$30 x 3 = $90

6 pairs of ice cleats cost about $90. (Over estimate since 15 is larger than 14.89)

4. Estimate the perimeter of each square.
   Tell if your estimate is an overestimate or an underestimate.
   How do you know?

a)

1.3 cm
≈1

b)

2.1 cm
≈2

c)

2.6 cm
≈3

P = Side x 4
  1cm x 4

4 cm

Under estimate since 1 cm is less than 1.3 cm

P = Side x 4
  2cm x 4

8 cm

Under estimate since 2 cm is less than 2.1 cm
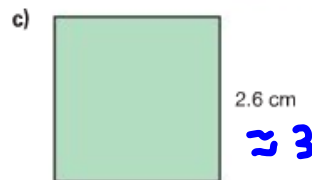
P = Side x 4
  3cm x 4

12 cm

over estimate since 3 cm is more than 2.6 cm

Homework Solutions

side of square is perimeter divide by 4

5. Estimate the side length of a square with perimeter:

   a) 24.2 cm   b) 29.8 cm   c) 35.6 cm

side = perimeter÷4   side = perimeter÷4   side = perimeter÷4

about 24cm÷4   about 30cm÷4   about 36cm÷4

6 cm   7.5 cm   9 cm

underestimate   overestimate   overestimate

6. a) Is 9.47 × 5 greater than, or less than, 45?
      How can you estimate to find out?
   b) Is 23.86 ÷ 4 greater than, or less than, 6?
      How can you estimate to find out?
   Show your work.

6a)it is greater since 9 is smaller
than 9.47 and we know 9x5 is 45
(Using 9 x 5 is front end
estimation)

6b) 23.86 is close to 24 but
smaller and we know

24 ÷ 6 = 4 so if you take a
smaller number and divide
it by 6 it is smaller again

7. Copy and complete. Write >, <, or =.
   How did you decide which symbol to use?
   a) 5.6 × 2 □ 1.4 × 4

   about   about

   6 x 2   1.5 x 4

   12   3 x 2 (Half and double)

                  6

b) $4.8 \div 2 \square 15.5 \div 5$

   about   about

   5 ÷ 2   15 ÷ 5

   2.5   <   3

Ch. 3   Lesson 3

Multiply decimals by whole numbers

3.4   x   6

When multiplying decimals, you do NOT line up decimal places
BUT you line up numbers on top of each place

$$
\begin{array}{r}
\overset{2}{3}.4 \\
\times\ 6 \\
\hline
20.4
\end{array}
$$

→ close to   18 estimate

Step 1) Ignore the decimals until the end and multiply 34 x 6
(Show work)

$$
\begin{array}{r}
34 \\
\times\ 6 \\
\hline
20\ 4
\end{array}
$$

30	4
6	30 x 6	4x6
	180	24

Or area model

$$
\begin{array}{r}
180 \\
+\ 24 \\
\hline
204
\end{array}
$$

so

Step 2) To replace the decimal, there are two methods

Method 1) Estimate! This will help you place your decimal

3.4 x 6

Estimation: 3 x6 = 18 estimate

My answer should be around   18

So 3.4 x 6 = 20.4 since it it close to 18

Method 2) count the TOTAL number of digits after the
decimal place in your original questions

3.4   Has 1 number after the decimal point

x 6   has 0   numbers after the decimal place

add together

← answer has 1 digit after
decimal place

My answer should have 1 number after the decimal
place

Example: Find 4.5 x 7 (Show work by multiplying first)

$$\begin{array}{r} 4.5 \\ \times\ 7 \\ \hline 3\,1.5 \end{array}$$

$$\begin{array}{r} \overset{3}{4}5 \\ \times\ 7 \\ \hline 315 \end{array}$$

40	5
40x7 =280	5x7 =35

$$\begin{array}{r} 280 \\ +\ 35 \\ \hline 315 \end{array}$$

Your Turn

Then Estimate! This will help you place your decimal 4.5 x 7

Estimation: __5__ x 7 = 35

My answer should be around__35__

So the answer to 4.5 x 7 = __31.5__

The decimal point is missing in each product. Use front end estimation to place each decimal point.

a) 8.64 x 4 = 35.56

↓

8 x4
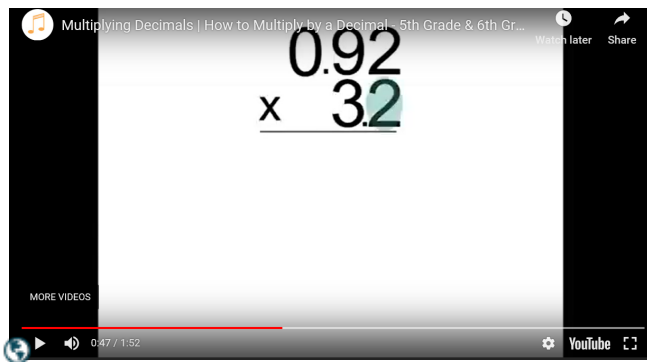
= 32

b) 3.012 x 3 = 9.036

↓ est

3 x3

= 9

Multiplying decimals song

Class / Homework

page 97

#1 Don't use base ten block, Multiply like we did in class

#2 a c e

#3(ae) → find actual and Est

#4 abc → actual & Estimat

3b)

Actual 4.38×4

4×4 Est
$= 16$

4.38
$\times 4$
17.52

2b)

$3.12 \times 6 = 18.72$

$3 \times 6 = 18$

Multiply the following

1. 2.3 x 6

2. 2.5 x 7

Practice . . . . Don't use base ten block, Multiply like we did in class

1. Use Base Ten Blocks to multiply.

a)	2.3	b)	1.8	c)	1.23	d)	2.42
	× 2		× 4		× 5		× 3

2. The decimal point is missing in each product.
   Use front-end estimation to place each decimal point.
   a) $7.1 \times 5 = 355$ b) $3.12 \times 6 = 1872$
   c) $15.466 \times 3 = 46398$ d) $1.408 \times 5 = 7040$
   e) $2.005 \times 8 = 1604$ f) $8.25 \times 4 = 330$

2 a) 7.1 x 5 = 355

Step 1: 7 x 5 = 35 (estimation)

Step 2: 7.1 x 5 = 35.5 (I know the decimal is correct because of my estimation

3. Use benchmarks to estimate each product.
   a) 2.4×6 b) 4.38×4 c) 1.499×6
   d) 6.721×2 e) 3.983×3 f) 7.3225×5

4. Multiply.
   a) 8.2×4 b) 1.02×6 c) 5.9×2
   d) 6.112×3 e) 3.525×7 f) 5.354×6

5. Estimate to choose the correct product for each multiplication question.

Question		Possible Products		
a)	2.85 × 3	855	85.5	8.55
b)	12.36 × 4	494.4	49.44	4.944
c)	148.73 × 5	7.4365	74.365	743.65

a. 3 x 3 = 9   (the correct answer is 8.55)

b. 12 x 4 = 48   (the correct answer is 49.44)

c. 149 x 5 =   100 x 5 = 500
                        40 x 5 = 200
                          9 x 5 =   45
                                      745   (the correct answer is 743.65)

6. Elisa works in a hospital lab in Brandon, Manitoba.
   In 1 h, she tested 7 tubes of blood.
   Each tube contained 12.25 mL of blood.
   How much blood did Elisa test?
   How did you find out?

7. Naja saved $14.75 each week for 8 weeks.
   She had just enough money to buy a family membership
   to the Vancouver Aquarium. About how much was
   the cost of the membership?

Step 1: 14.75 x 8 =   (need to know that it is a multiplication question)

Step 2:   15 x 8 =   10 x 8 = 80
                         5 x 8 = 40
                                 ───
                                  120

Step 3:   The cost of the membership was about $120

8. Tianna has saved $9.75 each week for 7 weeks.
   She wants to buy a snowboard that costs $80.45, including tax.
   a) Does Tianna have enough money? How do you know?
   b) If your answer to part a is no, how much more money does Tianna need?

9. The decimal point in some of these <u>products</u> is in the wrong place. Identify the mistakes, then write each product with the decimal point in the correct place.

a) $4.01 \times 5 = 200.5$

b) $7.893 \times 3 = 23.679$

c) $89.85 \times 4 = 35.94$

d) $1.98 \times 3 = 0.594$

9 a) 4.01 x 5 = 200.5

Step 1: 4 x 5 = 20

Step 2: the decimal should be 20.05 not 200.5

10. **a)** Akuna sold three 1.375-L bottles of birch syrup to raise money
for his school in Hay River.
Did Akuna sell more or less than 4 L of syrup?
How much more or less? Explain how you know.

b) Akuna sold each bottle of syrup for $74.79.
How much money did he raise?

11. The Townsend's big-eared bat
    lives in river valleys in southern British Columbia.
    It has a mass of 8.812 g.
    What is the combined mass of
    6 of these tiny bats?

12. Write a story problem that can be solved by multiplying 4.026 by 7.
Trade problems with a classmate and solve your classmate's problem.

13. You can estimate how tall a child will be as an adult
    by doubling her height at 2 years of age.
    Serena is 2 years old and 81.4 cm tall.
    About how tall will Serena be as an adult?

14. The Three Dog Bakery in Vancouver sells bags
    of all-natural chicken-flavoured dog food for $7.95 each.
    Saima buys 3 bags.
    a) Saima gives the cashier $25.00.
       How much change should she receive?
    b) Each bag has a mass of 2.268 kg.
       Does Saima have more or less than 7 kg of dog food
       altogether? How do you know?

Step 1: 7.95 x 3 =

Step 2: 8 x 3 = 24 (estimation)

Step 3: 795 x 3 =   700 x 3 = 2100
                     90 x 3 =   270
                      5 x 3 =   15
                               2385

Step 4: 7.95 x 3 = 23.85 (I know where to put my decimal because of my estimation)

Step 5 (Question a)

  25.00
- 23.85
   1.15

She should recieve $1.15 in change

Step 6: (Question b)

2.268 kg each x 3 (he bought 3 bags) =

2 x 3 = 6 (estimation)

2268 x 3 = 2000 x 3 = 6000
             200 x 3 =   600
              60 x 3 =   180
               8 x 4 =   32
                        6812

2.268 x 3 = 6.812 (I knew where to put the decimal because of my estimation)

Saima has **less** than 7 kg of dog food.