

1. Estimate the product first. Solve by using the standard algorithm. Use your estimate to check the reasonableness of the product. The first one is done for you.

a. 213×328

$$\begin{array}{r} \approx 200 \times 300 \\ = 60,000 \\ \begin{array}{r} 213 \\ \times 328 \\ \hline 1704 \\ 4260 \\ + 63900 \\ \hline 69,864 \end{array} \end{array}$$

b. 662×372

$$\begin{array}{r} \approx 700 \times 400 \\ = 280,000 \\ \begin{array}{r} 662 \\ \times 372 \\ \hline 1324 \\ 46340 \\ + 198600 \\ \hline 246,264 \end{array} \end{array}$$

c. 739×442

$$\begin{array}{r} \approx 700 \times 400 \\ = 280,000 \\ \begin{array}{r} 739 \\ \times 442 \\ \hline 1478 \\ 29560 \\ + 295600 \\ \hline 326,638 \end{array} \end{array}$$

d. 807×491

$$\begin{array}{r} \approx 800 \times 500 \\ = 400,000 \\ \begin{array}{r} 807 \\ \times 491 \\ \hline 807 \\ 72630 \\ + 322800 \\ \hline 396,237 \end{array} \end{array}$$

e. 3502×656

$$\begin{array}{r} \approx 4000 \times 700 \\ = 2,800,000 \\ \begin{array}{r} 3502 \\ \times 656 \\ \hline 21012 \\ 175100 \\ + 2101200 \\ \hline 2,297,312 \end{array} \end{array}$$

f. 4390×741

$$\begin{array}{r} \approx 4000 \times 700 \\ = 2,800,000 \\ \begin{array}{r} 4390 \\ \times 741 \\ \hline 4390 \\ 175600 \\ + 3073000 \\ \hline 3,252,990 \end{array} \end{array}$$

g. 530×2075

$$\begin{array}{r} \approx 500 \times 2000 \\ = 1,000,000 \\ \begin{array}{r} 2075 \\ \times 530 \\ \hline 0000 \\ 62250 \\ + 1037500 \\ \hline 1,099,750 \end{array} \end{array}$$

h. 4004×603

$$\begin{array}{r} \approx 4000 \times 600 \\ = 2,400,000 \\ \begin{array}{r} 4004 \\ \times 603 \\ \hline 12012 \\ 00000 \\ + 2402400 \\ \hline 2,414,412 \end{array} \end{array}$$

i. 987×3105

$$\begin{array}{r} \approx 1000 \times 3000 \\ = 3,000,000 \\ \begin{array}{r} 3105 \\ \times 987 \\ \hline 21735 \\ 248400 \\ + 2794500 \\ \hline 3,064,635 \end{array} \end{array}$$

2. Each container holds 1 L 275 mL of water. How much water is in 609 identical containers? Find the difference between your estimated product and precise product.

Estimate: $1200 \text{ ml} \times 600$
 $= 720,000 \text{ ml}$
 $= 720 \text{ L}$

Actual: $1275 \text{ ml} \times 609$
 $= 776,475 \text{ ml}$
 $= 776 \text{ L } 475 \text{ ml}$

$$\begin{array}{r} 776 \text{ L } 475 \text{ ml} \\ - 720 \text{ L} \\ \hline 56 \text{ L } 475 \text{ ml} \end{array}$$

My actual product was 56 L 475 ml larger than the estimated product.

3. A club had some money to purchase new chairs. After buying 355 chairs at \$199 each, there was \$1,068 remaining. How much money did the club have at first?

1 unit = \$199

355 units = $\$199 \times 355 = \$70,645$

$$\begin{array}{r} 199 \\ \times 355 \\ \hline 995 \\ 8950 \\ + 59700 \\ \hline 70645 \end{array}$$

$$\begin{array}{r} 70,645 \\ + 1,068 \\ \hline \$71,713 \end{array}$$

The club had \$71,713 before purchasing new chairs.

4. So far, Carmella has collected 14 boxes of baseball cards. Each box has 315 cards in it. Carmella estimates that she has about 3000 cards, so she buys 6 albums that hold 500 cards each.

- a. Will the albums have enough space for all of her cards? Why or why not?

she won't have enough room for all her cards in the albums she bought. Carmella probably rounded both the number of cards per box and the number of boxes down. Her estimate was too low. Since she wants to make sure she has enough room for all her cards, she probably should have rounded the number of boxes up. Like,

- b. How many cards does Carmella have?

$\approx 300 \times 15 = 4,500$ would have been a better estimate in this situation.

$315 \times 14 = 4,410$

$$\begin{array}{r} 315 \\ \times 14 \\ \hline 1260 \\ + 3150 \\ \hline 4410 \end{array}$$

Carmella actually has 4,410 cards.

- c. How many albums will she need for all of her baseball cards?

skip counting: 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500

OR
 $\approx 4500 \div 500 = 9$

Since the albums hold 500 cards each, she'll need 9 albums to hold all her cards.