

• Multiplying Three-Digit Numbers

To multiply a three-digit number by a one-digit number:

Step 1: Multiply the digit in the ones place. Regroup if necessary.

Step 2: Multiply the digit in the tens place. Regroup if necessary.

Step 3: Multiply the digit in the hundreds place.

Practice:

Find each product.

1. $\begin{array}{r} \$100 \\ \times \quad 7 \\ \hline \end{array}$

2. $\begin{array}{r} \$240 \\ \times \quad 3 \\ \hline \end{array}$

3. $\begin{array}{r} 250 \\ \times \quad 6 \\ \hline \end{array}$

4. $\$250 \times 4$ _____

5. $\$520 \times 7$ _____

6. 600×6 _____

7. 210×8 _____

8. $\$200 \times 3$ _____

9. 130×6 _____

10. Ben and Maria put 300 pennies in a jar. They estimated that they would need 6 times as many pennies to fill the jar completely. About how many pennies did Ben and Maria estimate would fill the penny jar? _____

- **Parentheses**
- **Using Compatible Numbers, Part 1**

- **Parentheses** tell us which part of a problem to do first.
 - **Compatible numbers** are numbers that are easy to work with. Two types of compatible numbers are:
 - Numbers whose sums are rounded numbers: $40 + 60 = 100$.
 - Numbers that end in 25, 50, or 75.
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Practice:

Simplify.

1. $(12 - 5) - 6$ _____

2. $7 - (9 - 5)$ _____

3. $(3 \times 2) + 7$ _____

4. $15 - (12 \div 2)$ _____

5. $11 - (9 \div 3)$ _____

6. $(12 \div 2) - 2$ _____

Use compatible numbers to find the sum mentally.

7. Mrs. Barber's class was collecting pennies for the penny jar. Willie brought 25 pennies. Susan brought 30 pennies. Mason brought 75 pennies. How many pennies did the three students on bring altogether? _____

Use compatible numbers to estimate each sum or difference.

8. $151 - 73$ _____

9. $\$13.27 + \2.52 _____

10. $104 + 26$ _____

11. $\$5.77 - \2.28 _____

• Estimating Products

We can estimate a product by rounding a factor before we multiply.

Practice:

Estimate each product.

1.
$$\begin{array}{r} 52 \\ \times 7 \\ \hline \end{array}$$

2.
$$\begin{array}{r} \$31 \\ \times 8 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 19 \\ \times 4 \\ \hline \end{array}$$

4. The third grade classes took 3 buses on their field trip. There were 58 students on each bus. About how many third graders went on the field trip? _____
5. Four classes were on the playground. There were 22 students in each class. About how many students were on the playground? _____
4. Estimate the cost of 3 concert tickets if each ticket costs \$39. _____

• Using Compatible Numbers, Part 2

We can use compatible numbers to estimate answers to arithmetic problems.

Practice:

Use compatible numbers to estimate each sum or difference.

1.
$$\begin{array}{r} \$3.26 \\ + \$1.73 \\ \hline \end{array}$$

2.
$$\begin{array}{r} \$8.00 \\ - \$3.28 \\ \hline \end{array}$$

3.
$$\begin{array}{r} \$6.54 \\ + \$2.48 \\ \hline \end{array}$$

4.
$$\begin{array}{r} \$5.51 \\ - \$3.26 \\ \hline \end{array}$$

5. Randy bought four pairs of pants for \$26 each. Use compatible numbers to estimate the cost of the four pairs of pants. _____
6. Estimate the product of 247×4 . _____
7. Estimate the difference of 854 and 327. _____

• Using Estimation to Verify Answers

We can use estimation to check whether a count, a measure, or a calculation is reasonable.

Practice:

1. Randy bought a new coat for \$29 and a shirt for \$19. He calculated that he would need \$75 to pay for both items. Is Randy's total reasonable? Explain your answer.

2. Every day Alan walks to school. He counted 513 steps from his house to the school's door. He estimates that he will walk 1,500 steps, walking to school for three days. Is his estimate reasonable? Explain your answer.

3. Gilbert estimates that 5 new shirts will cost more than \$200. If each shirt costs \$26, is Gilbert's estimate reasonable? Explain your answer.

4. Maxine bought a game for \$42, a CD for \$22, and a bicycle helmet for \$29. She calculated that she would need \$95 for all three items. Is her total reasonable? Explain your answer.

• Rounding to the Nearest Dollar

- We can round money amounts to the nearest dollar.
 - We can round money amounts to estimate answers.
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Practice:

For problems 1–6, round each dollar and cent amount to the nearest dollar.

1. \$3.85 _____

2. \$7.15 _____

3. \$9.39 _____

4. \$8.75 _____

5. \$5.61 _____

6. \$2.43 _____

7. Estimate the total price of a softball that costs \$2.29 and a glove that costs \$5.89. _____
8. A notebook costs \$2.98 and a calculator costs \$9.29. Estimate the total price of the two items. _____
9. Bobby saw a paint set that cost \$7.89 and a paintbrush that cost \$1.38. Estimate the total price of the paint set and paintbrush. _____
10. Marcel bought a veggie burger for \$3.38, fruit for \$1.15, and a large milk for \$1.69. About how much did Marcel spend? _____

• Multiplying Three-Digit Numbers, Part 2

To multiply a three-digit number by a one-digit number:

Step 1: Multiply the digit in the ones place. Regroup if necessary.

Step 2: Multiply the digit in the tens place. Regroup if necessary.

Step 3: Multiply the digit in the hundreds place.

Practice:

Multiply:

1.
$$\begin{array}{r} 209 \\ \times 6 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 165 \\ \times 8 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 441 \\ \times 5 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 318 \\ \times 5 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 493 \\ \times 3 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 550 \\ \times 6 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 135 \\ \times 8 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 211 \\ \times 6 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 329 \\ \times 4 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 279 \\ \times 5 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 218 \\ \times 6 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 185 \\ \times 9 \\ \hline \end{array}$$

13. One plane ticket to Chicago costs \$380. How much will three tickets cost? _____

• Estimating by Weight or Mass

We can use an object whose weight or mass is known to estimate.

Practice:

1. Assume that 12 apples have a mass of 1 kilogram. Extend the table below to find the numbers of apples in 5, 6, 7, and 8 kilograms.

Number of kilograms	1	2	3	4	5	6	7	8
Number of apples	12	24	36	48				

2. One pint of punch weighs about one pound. Marian's full punch bowl weighs 18 pounds. The empty punch bowl weighs 2 pounds. How many pints of punch are in the punch bowl? _____
3. One gallon of water weighs about 8 pounds. Extend the table below to show the weight of 3, 4, and 5 gallons of water.

gallons	1	2	3	4	5
pounds	8	16			

4. The mass of one penny is about 3 grams. About how much will the mass of a roll of 50 pennies be? _____

• Effects of Estimation

- When we round up to estimate an answer, the estimate will be greater than the exact answer.
 - When we round down to estimate an answer, the estimate will be less than the exact answer.
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Practice:

1. Mr. Brown bought 3 boxes of computer paper for \$3.85 per box. He estimated the total cost of the paper by multiplying $3 \times \$4$. Will Mr. Brown's estimate be greater than or less than the exact cost?

2. There are three third grade classes in Charlene's school. Each class has 24 students. Charlene estimates that the total number of students in third grade is about 75 by multiplying 3×25 . Is Charlene's estimate greater than or less than the exact number of students?

3. John bought a softball for \$6.99 and a baseball hat for \$9.89. He added \$7 and \$10 to estimate the total price. Is John's estimate greater than or less than the exact price? _____
4. Sally bought 4 books that cost \$5.20 each. Estimate how much Sally spent. Is your estimate greater than or less than the exact cost? Explain.

• Multiplying Dollars and Cents

To multiply dollars and cents:

Step 1: Multiply the pennies. Regroup if necessary.

Step 2: Multiply the dimes. Regroup if necessary.

Step 3: Multiply the dollars.

Step 4: Write the dollar sign and the decimal point in the product.

Practice:

Find each product.

1.
$$\begin{array}{r} \$7.00 \\ \times \quad 5 \\ \hline \end{array}$$

2.
$$\begin{array}{r} \$4.30 \\ \times \quad 4 \\ \hline \end{array}$$

3.
$$\begin{array}{r} \$6.35 \\ \times \quad 2 \\ \hline \end{array}$$

4.
$$\begin{array}{r} \$2.25 \\ \times \quad 5 \\ \hline \end{array}$$

5.
$$\begin{array}{r} \$3.05 \\ \times \quad 6 \\ \hline \end{array}$$

6.
$$\begin{array}{r} \$1.35 \\ \times \quad 5 \\ \hline \end{array}$$

7. Tickets to the movie are \$6.25. Maria's father bought four tickets. How much did he pay altogether? _____
8. Jackie bought three postcards for \$1.28 each. How much did the post cards cost altogether? _____