

Lesson 34

Books

Calvert Math
Practice

Student Assignments

□ MATHEMATICS

- ___ Complete Warm-up activity
- ___ Read and discuss pp. 80–81, *Calvert Math*
- ___ Complete even-numbered problems 2–24, **Exercises and Problem Solving**, pp. 81–82, *Calvert Math*
- ___ Complete **Test Prep**, p. 82, *Calvert Math*
- ___ Complete **Practice 42**, *Practice*

Objective: to find the product of a whole number and a decimal

Notes

Warm-up: Review multiplication by having the student to work the following problems.

$$\begin{array}{r} 1. \ 611 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \ 117 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \ 813 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \ 325 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \ 24 \\ \times 6 \\ \hline \end{array}$$

Skill Development: Read the problem at the top of p. 80 in *Calvert Math*. In Lesson 33 the student used base-ten blocks to solve the problem. Today he will learn how to multiply decimals and place the decimal point in the correct position without using the base-ten blocks. To solve the problem, the student needs to multiply 0.4 by 2. When multiplying whole numbers by decimals, he should multiply as he does with whole numbers, and then place the decimal point in the product. Be sure he understands the importance of correctly placing the decimal point.

Look at **More Examples** A–B on pp. 80–81 together. Point out that the number of decimal places in the product is equal to the number of decimal places in the factors.

Assign the even-numbered **Exercises** and **Problem Solving** problems 2–24 on pp. 81–82 in *Calvert Math*, as well as problems 27–28 of the **Test Prep** at the bottom of p. 82.

Practice: Assign **Practice 42** in *Practice*.

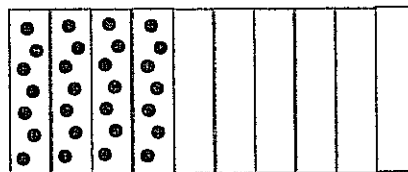
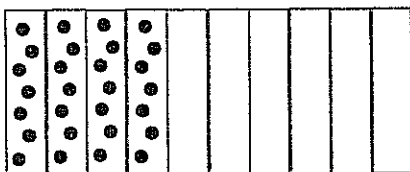
Enrichment: Assign problems 25–26 on p. 82 in *Calvert Math*. Also, assign **Enrichment 43** in *Practice*.



3.10 Multiplying Whole Numbers and Decimals

Objective: to find the product of a whole number and a decimal

The Roberts family is redecorating their basement. Two of the walls in the basement were covered with wallpaper that they are removing. Only four tenths of each wall still has wallpaper. What part of both walls is covered with wallpaper?



There is wallpaper remaining on 0.4 of the 2 walls.

$$0.4 \times 2$$

The word *of* indicates multiplication in math.

When you divide the walls into tenths, you see that there are 8 tenths, or 0.8, sections with wallpaper.

The product 0.8 is less than 2 because you are multiplying 2 by a factor that is less than 1.

More Examples

Multiply the problems just like whole numbers. Then use the decimal places in the factors to place the decimal in the product.

A. Multiply. 30×0.5

You are finding
5 tenths of 30.
5 tenths is $\frac{1}{2}$.
What is $\frac{1}{2}$ of 30?

$$\begin{array}{r} 30 \leftarrow 0 \text{ decimal places} \\ \times .5 \leftarrow 1 \text{ decimal place} \\ \hline 15.0 \leftarrow 1 \text{ decimal place} \end{array}$$

B. Multiply. 1.25×8

$$\begin{array}{r} 1.25 \leftarrow 2 \text{ decimal places} \\ \times 8 \leftarrow 0 \text{ decimal places} \\ \hline 10.00 \leftarrow 2 \text{ decimal places} \end{array}$$

Look at the number of decimal places in the product in both problems. This matches the number of decimal places in the factors!

TRY These

Draw models to show each of the following problems.

1. 2×0.9

2. 9×0.5

3. 16×0.1

4. 10×0.6

Exercises

Multiply. Use the number of decimal places in the factors to place the decimal point in the product.

1. $\begin{array}{r} 5.8 \\ \times 0.5 \\ \hline \end{array}$

2. $\begin{array}{r} 24 \\ \times 0.25 \\ \hline \end{array}$

3. $\begin{array}{r} 90 \\ \times 0.33 \\ \hline \end{array}$

4. $\begin{array}{r} 1.75 \\ \times 40 \\ \hline \end{array}$

Insert a decimal point to make each problem correct.

5. $42 \times 0.035 = 1470$

6. $4.73 \times 188 = 88924$

7. $8 \times 8.188 = 65504$

8. $0.42 \times 136 = 5712$

9. $100 \times 0.125 = 12500$

10. $2,354 \times 1.34 = 315436$

Multiply.

11. $\begin{array}{r} 14 \\ \times 2.6 \\ \hline \end{array}$

12. $\begin{array}{r} 200 \\ \times 4.5 \\ \hline \end{array}$

13. $\begin{array}{r} 8 \\ \times 0.35 \\ \hline \end{array}$

14. $\begin{array}{r} 14 \\ \times 2.5 \\ \hline \end{array}$

15. $\begin{array}{r} 22 \\ \times 1.1 \\ \hline \end{array}$

16. $\begin{array}{r} 100 \\ \times 0.67 \\ \hline \end{array}$

17. $\begin{array}{r} 5 \\ \times \$0.05 \\ \hline \end{array}$

18. $\begin{array}{r} 0.345 \\ \times 7 \\ \hline \end{array}$

19. $\begin{array}{r} 1.365 \\ \times 2 \\ \hline \end{array}$

20. $\begin{array}{r} 2.562 \\ \times 4 \\ \hline \end{array}$

21. $\begin{array}{r} \$35.62 \\ \times 8 \\ \hline \end{array}$

22. $\begin{array}{r} 5.515 \\ \times 2 \\ \hline \end{array}$

Multiplying Whole Numbers and Decimals

Multiply.

$$\begin{array}{r} 1. \quad 0.5 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 1.7 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 0.06 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 2.78 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 0.008 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 6.5 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad \$2.08 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 0.84 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 1.345 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 0.024 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 1.8 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 3.9 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad \$1.72 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 8.031 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad \$3.22 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 1.371 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 1.739 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 4.02 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 0.641 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 4.031 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 21. \quad 9.821 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 6.781 \\ \times 3 \\ \hline \end{array}$$

Solve.

23. It rained for 5 days and each day exactly 0.83 inches of rain fell. What was the total amount of rain?

24. The width of the classroom is 18.2 feet. If the length is twice the width, how long is the classroom?

25. If 1 book costs \$9.35, how much will 6 books cost?

Lesson 85

Books

Calvert Math
Practice

Student Assignments

MATHEMATICS

- ___ Complete Warm-up activity
- ___ Read and discuss p. 174, *Calvert Math*
- ___ Work Try These, p. 175, *Calvert Math*
- ___ Complete problems 1–4, Solve, p. 175, *Calvert Math*
- ___ Complete Mid-Chapter Review, p. 175, *Calvert Math*
- ___ Complete Practice 95, *Practice*

Notes

Objective: to determine necessary information to solve problems

Warm-up: Have the student put the following fractions in order from least to greatest.

$$\frac{4}{5}, \frac{1}{10}, \frac{1}{2}$$

Skill Development: Explain to the student that not all word problems can be solved. If there is not enough information, he cannot solve the problem. Also explain that there may be too much information in a problem. In this type of problem, the student needs to determine what information he needs to solve the problem.

Read the first problem at the top of p. 174 in *Calvert Math* together. As the student begins to plan out the problem, he will see that the information he needs to solve the problem is not given.

Read the second problem with the student. As he plans out the problem, he will find that there are extra facts. Explain that he can disregard the extra information.

Have the student answer the **Try These** at the top of p. 175 orally. Assign **Solve** problems 1–4 on p. 175 in *Calvert Math*, as well as the **Mid-Chapter Review**.

Practice: Assign Practice 95 in *Practice*.

Enrichment: Read and discuss p. 172 in *Calvert Math* with the student.



6.8 Problem-Solving Strategy: Relevant Information

Objective: to determine necessary information to solve problems

Not Enough Information

For the block party, Andre is making chicken salad. He mixes the $2\frac{3}{4}$ pounds of chicken with $1\frac{3}{8}$ pounds of grapes. He also mixes in pineapple, almonds, and salad dressing. What is the weight of the salad?

1. READ

You need to find the weight of the salad. You know the weight of the chicken and of the grapes.

2. PLAN

You can add the weight of each ingredient to find the total weight of the salad. However, you do not know the weight of the other ingredients. You do not have enough information to solve the problem.

Too Much Information

The block party started at 4:15. The DJ arrived at 5:30. By 11:00 that evening, everyone had gone home. How long was the party?

1. READ

You need to find the total length of the party. You know when the party started and when it ended. You do not need to know when the DJ arrived.

2. PLAN

Think about a clock to find the amount of time that passes between 4:15 and 11:00.

3. SOLVE

There are 45 minutes from 4:15 to 5:00 and 6 hours from 5:00 to 11:00. So the party lasted for 6 hours and 45 minutes.

4. CHECK

You used the starting time and ending time to find the length of the party.

TRY These.....

Write whether there is *not enough information* or *extra information*.

1. Elizabeth has 255 European stamps, 108 American stamps, and 98 Asian stamps. How many European and American stamps does she have?
2. Joe has some wood. He needs $1\frac{1}{4}$ feet to make a shelf for his room. How much wood will he have left?

solve.....

Solve each problem. If there is *not enough information*, tell what information is needed. If there is *too much information*, state the extra facts.

1. James and Felicia are going to make spaghetti for a fundraiser dinner at their school. They have \$50.00 to buy noodles, pasta sauce, cheese, garlic bread, and cookies. The garlic bread costs \$7.25. Do they have enough money to buy the other ingredients?
2. At the supermarket they see 3 jars of sauce on sale for \$7.99 and pasta on sale for \$1.59 per pound. If they think that they will need 6 jars of sauce, how much will the sauce cost?
3. They buy a 32-ounce bag of cheese. James nibbles on 4 ounces of cheese on the way back home and eats 2 of the cookies. How much cheese is left?
4. They boil the water for the spaghetti. The box says that the spaghetti will take approximately 12–15 minutes to cook. When will the spaghetti be done?

MID-CHAPTER Review

Add or subtract. Write each answer in simplest form.

1. $\frac{3}{7} - \frac{1}{7}$

2. $\frac{5}{8} + \frac{3}{8}$

3. $\frac{3}{8} + \frac{12}{16}$

4. $\frac{7}{8} - \frac{2}{5}$

Replace each \bullet with $<$, $>$, or $=$ to make a true sentence.

5. $\frac{5}{6} \bullet \frac{11}{12}$

6. $\frac{2}{7} \bullet \frac{4}{9}$

7. $\frac{1}{5} \bullet \frac{12}{7}$

8. $\frac{1}{2} \bullet \frac{20}{3}$

Name _____

Problem-Solving Strategy: Relevant Information

Solve. Underline any extra facts. If the problem cannot be solved, tell what information is missing.

- At a scout meeting, twenty-two boys voted on taking a fishing trip to the lake. Fourteen scouts voted in favor of the trip, six voted against the trip, and two did not vote. How many more voted for the trip than against it?

- At the school picnic, 82 pupils had hamburgers, 58 had hot dogs, and 13 had chicken. How many had hot dogs and chicken?

- Peter has 55 feet of wood to build a bookshelf. Does he have enough wood?

- Terry has $2\frac{1}{8}$ cups of pancake batter left after breakfast. She had $4\frac{1}{2}$ cups before breakfast. How much batter did she use?

- There are 72 more baseball cards in Phil's collection than in Bob's collection. Bob has 87 baseball cards. How many cards does Phil have?

- Yarn for Doug's project costs \$0.89 per package. Doug needs 17 packages of blue yarn, 6 packages of yellow yarn, and 10 packages of white yarn. How many packages of yarn does Doug need?

- New docks are being built at the marina. On one side, 18 sailboats and 18 motorboats will dock. On the other side, 23 motorboats will dock. How many motorboats will dock?

- There are 43,712 people attending the baseball game. Yesterday's game had an even better attendance. How many more people attended yesterday's game?

Lesson 148

Books

Calvert Math
Practice

Student Assignments

MATHEMATICS

- ___ Complete Warm-up activity
- ___ Read and discuss p. 336, *Calvert Math*
- ___ Work **Try These**, p. 336, *Calvert Math*
- ___ Complete problems 1–21, p. 337, *Calvert Math*
- ___ Complete **Practice 179**, *Practice*

Notes

Objective: to find the percent of a number

Warm-up: Have the student write each of the following percents as a fraction in simplest form.

- | | |
|--------|--------|
| 1. 60% | 3. 5% |
| 2. 30% | 4. 12% |

Skill Development: Read the problem at the top of p. 336 in *Calvert Math* together. There are two methods to solve this problem. Look at both methods in the boxes with the student. He can write the percent as a decimal and then multiply the decimal by the whole amount, or he can write the percent as a fraction and then multiply by the whole amount. Both methods yield the same answer. Tell the student he may want to use one method to solve the problem and the other method to check his answer.

Assist him in completing the **Try These** at the bottom of p. 336. Assign problems 1–21 on p. 337 in *Calvert Math*.

Practice: Assign **Practice 179** in *Practice*. *Note:* The directions for problems 13–16 of **Practice 179** should read, “Solve by writing the percent as a decimal. Round to the nearest tenth *if* necessary.”

Enrichment: Assign ~~Problem Solving: Get a Strike~~, including the **Extension**, on p. 341 in *Calvert Math*.



11.9 Percent of a Number

Objective: to find the percent of a number

Many families make a budget to help plan how they will use their money. The Conway family's weekly entertainment budget is shown to the right. Chris and Kate Conway would like to see a movie this week. It costs \$9.25 to go to a movie theater. Does their budget allow them to go to the movie theater this week?

Total \$80	
Dinner	50%
Movies	25%
Music	20%
Miscellaneous	5%

You can solve this problem by finding the percent of a number. The table below shows two different ways to find the percent of a number.

Method 1	Method 2
Write the percent in decimal form and multiply. $25\% = 0.25$ $\begin{array}{r} 80 \\ \times 0.25 \\ \hline 400 \\ + 160 \\ \hline 20.00 \end{array}$	Write the percent as a fraction and multiply. $25\% = \frac{25}{100} = \frac{1}{4}$ $\frac{1}{4} \times \frac{80}{1} = \frac{20}{1} = 20$

After looking at both methods, Chris and Kate have \$20 to spend on movies. Since the movie costs \$9.25 per ticket, Chris and Kate would have to spend \$18.50. According to their budget, they would be able to go to the movies this week.

TRY *These*

Solve by writing the percent as a decimal.

1. 36% of 70

2. 22% of 18

3. 9% of 33

4. 80% of 77

Exercises

Solve by writing the percent as a fraction.

- | | | | |
|--------------|---------------|--------------|---------------|
| 1. 60% of 40 | 2. 10% of 550 | 3. 50% of 76 | 4. 15% of 108 |
| 5. 15% of 20 | 6. 30% of 90 | 7. 25% of 40 | 8. 75% of 80 |

Solve. Use any method.

- | | | | |
|---------------|----------------|----------------|----------------|
| 9. 76% of 100 | 10. 44% of 50 | 11. 8% of 111 | 12. 25% of 48 |
| 13. 8% of 82 | 14. 75% of 350 | 15. 40% of 520 | 16. 66% of 666 |

PROBLEM Solving

- | | |
|--|--|
| 17. Nick says his age is 20% of his father's age. His father is 45 years old. How old is Nick? | 18. A magazine sells for \$3.50. How much tax will be charged if the sales tax is 5% of the price? |
| 19. Yasmine says that 15% of 20 is 30. Is Yasmine correct? Explain. | 20. How could you use fractions to show 40% of 120? |
- ★21. Donna shot 20 arrows during archery lessons. If 30% of the arrows hit the target, how many arrows did *not* hit the target?

Name _____

Percent of a Number

Write each percent as a fraction in simplest form.

1. 70%

2. 45%

3. 32%

4. 12%

Write each percent as a decimal.

5. 99%

6. 42%

7. 7%

8. 5%

Solve by writing the percent as a fraction.

9. 75% of 40

10. 20% of 88

11. 50% of 123

12. 60% of 50

Solve by writing the percent as a decimal. Round to the nearest tenth if necessary.

13. 9% of 25

14. 15% of 8

15. 82% of 14

16. 22.5% of 18

Solve. Use any method. Round to the nearest tenth if necessary.

17. 5% of 25

18. 17% of 22

19. 40% of 800

20. 2.5% of 20

PRACTICE 179 (continued)

Solve.

21. Felicity gives a 15% tip at her favorite Italian restaurant. If her pasta dinner costs \$15.95, what is the amount of her tip? Round to the nearest dollar.
- _____
22. Apryl has a job that pays her commission. She receives a percentage of her sales as payment. She just sold equipment for \$15,000 and she receives 5% commission. How much commission did Apryl earn from the sale?
- _____