

Important Concepts . . .

Preview Review



Mathematics Grade 4 *TEACHER KEY*

W3 - Lesson 5: Problem Solving

Important Concepts of Grade 4 Mathematics

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Materials Required

Mathematics Grade 4

Version 5

Preview/Review W3 - Lesson 5 TEACHER KEY

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Preview/Review Concepts for Grade Four Mathematics

TEACHER KEY



***W3 - Lesson 5:
Problem Solving***

OBJECTIVES

By the end of this lesson, you should

- solve story problems involving addition and subtraction
- solve story problems involving multiplication and division
- interpret remainders in story problems involving division
- calculate total amount spent (up to \$50.00) and determine change received
- solve story problems involving units of linear measure for length or width and perimeter
- solve story problems involving calculation of area
- solve story problems requiring equivalent measures using mass and capacity

GLOSSARY

area - the amount of space covered by a shape

capacity - the amount a container can hold

kilogram (kg) - a unit used to measure mass; $1\ 000\text{ g} = 1\text{ kg}$

litre (L) - a unit used to measure capacity; $1\ 000\text{ mL} = 1\text{ L}$

operation - a mathematical process or action, such as adding, subtracting, multiplying, or dividing

perimeter - the distance around the outside of a shape or figure

rectangle - a four-sided shape in which opposite sides are equal and the corners are square

W3 - Lesson 5: Problem Solving

A. Four-Step Problem-Solving Process

The math skills you have learned so far will help you solve problems in Mathematics and in your daily life.

To solve any problem, follow the Four-Step Problem-Solving Process.

Four-Step Process for Problem Solving
Step 1 Understand the problem
Step 2 Make a plan
Step 3 Try the plan
Step 4 Look back

Step 1 is very important. In this step, you take time to read carefully the information given in the problem, and you decide what exactly you are being asked to find.

Step 2 of the Problem-Solving Process asks you to make a plan.

- Some plans are very easy to make. Sometimes all you have to do is choose what operation (adding, subtracting, multiplying, or dividing) to use.

Example: Tammy had \$39.73 in her savings account. She deposited \$15.00 in her account. How much money is in her account now?

In this problem, your plan for Step 2 is simply to choose the correct operation that will give you the answer: Addition.



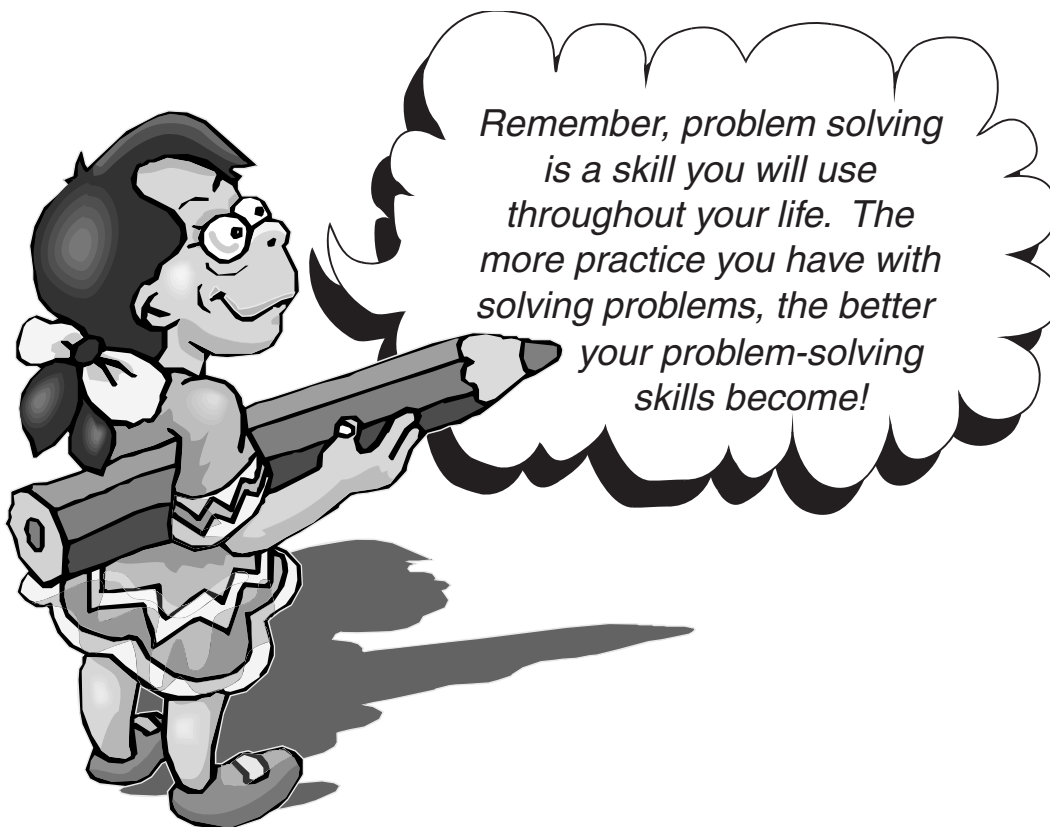
- Some plans are more complex.

Example: Bert counted 16 animals in the barnyard. Some were pigs and some were chickens. He counted a total of 44 legs. How many pigs and how many chickens were there?

In this problem, your plan for Step 2 is to think of a strategy to help you discover the answer. Most problems can be solved using more than one strategy. For this problem, the *Guess-and-Check* strategy is one strategy you could use to solve this problem.

Step 3 is where you try out your strategy or plan.

Step 4 is the Look Back step. Ask yourself, “Does my answer make sense? Is it reasonable? Did I answer the question being asked?” If not, perhaps you made a calculation error. Or, perhaps you need to go back to Step 2 and think of another strategy to try instead.



B. Choosing the Right Operation

Read each problem carefully. Solve each one by choosing the appropriate operation. Show all your work. Be sure to write your answer in a sentence.

1. Sally bought a bag of cookies that cost \$4.25 and 2 litres of milk that cost \$1.89 per litre. How much change did she receive from a \$10 bill?

<i>cookies</i>	<i>\$4.25</i>	<i><u>Change</u></i>
<i>milk</i>	<i>1.89</i>	<i>\$10.00</i>
<i>milk</i>	<i>1.89</i>	<i>-8.03</i>
	<i><u>\$8.03</u></i>	<i><u>\$1.97</u></i>

Sally received \$1.87 in change.

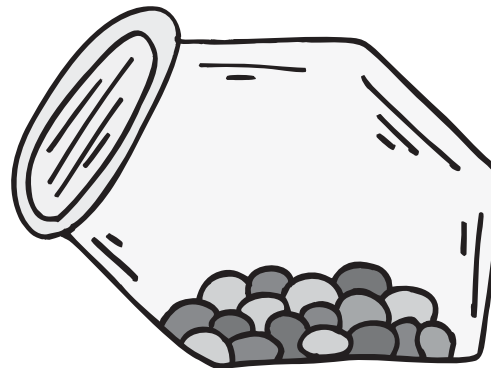


2. Jane bought a bag with 92 candies. She shared the bag equally among herself and her 6 friends. How many candies will each person get? How many candies will be left over?

$$92 \div 7 = ?$$

$$\begin{array}{r} 13 \text{ R } 1 \\ 7 \overline{)92} \\ \underline{-7} \\ 22 \\ \underline{-21} \\ 1 \end{array}$$

*Each person will get 13 candies.
There will be one candy left over.*

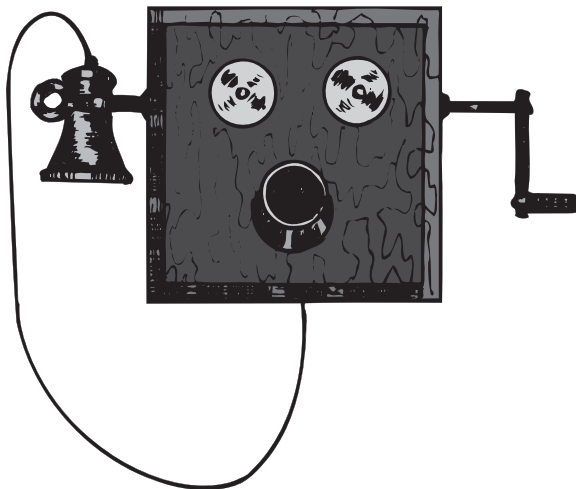


3. Alexander Graham Bell, the inventor of the telephone, was born in 1847 and he died in 1922.

- a. How old was he when he died?

$$\begin{array}{r} 1922 \\ -1847 \\ \hline 75 \end{array}$$

Alexander Graham Bell was 75 years old when he died.



- b. Did he live for a century? How do you know?

No. A century is 100 years. He lived for only 75 years.

4. Mr. and Mrs. Freeman took their two children to the fair. Tickets cost \$3.50 for an adult and \$1.75 for a child. At the fair each of them had a hot dog and a pop. The hot dogs cost \$0.95 each and the pop cost \$0.75 each. How much did the Freeman family spend at the fair?

Adult	\$3.50
	3.50
Child	1.75
	1.75
4 hotdogs	3.80
4 pops	+ 3.00
	\$17.30

The Freeman family spent \$17.30 at the fair.



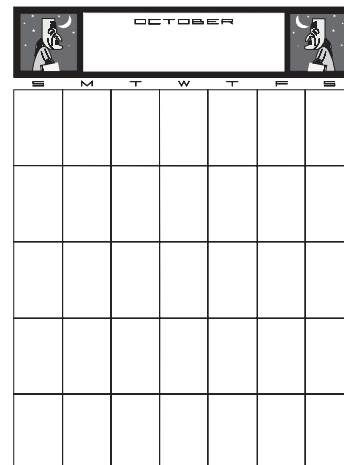
5. A teacher decided to buy some wipe-off desk calendars for the students in his class. Each calendar costs \$3. There are 26 students in his class. How much must he pay for all of the calendars?

$$\begin{array}{r} \$26 \\ \times 3 \\ \hline \end{array}$$

$$\times 3$$

$$\$78$$

The teacher must pay \$78 for all the calendars.

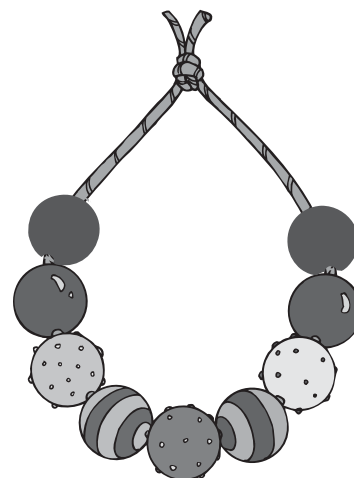


6. Jan and Tina are making beaded friendship bracelets. Nine beads are needed for each bracelet. The beads come in packages that hold 12 beads each. If they buy ten packages of beads, how many bracelets can they make?

$$10 \text{ packages} \rightarrow 10 \times 12 = 120 \text{ beads}$$

$$120 \div 9 = ?$$

$$\begin{array}{r} 13 \text{ R}3 \\ 9 \overline{)120} \\ \underline{-9} \\ 30 \\ \underline{-27} \\ 3 \end{array}$$



Jan and Tina can make 13 friendship bracelets.

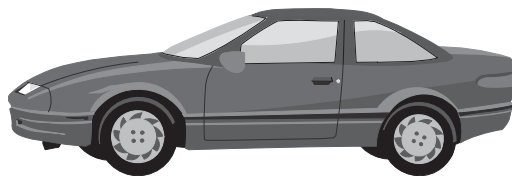
7. Fifty-five boys in Jacob's Scout troop plan to attend a weekend Jamboree. Four boys can ride in each car. How many cars will be needed to transport all of the boys to the Jamboree?

$$55 \div 4 = ?$$

$$\begin{array}{r} 13 \text{ R}3 \\ 4 \overline{)55} \\ \underline{-4} \\ 15 \\ \underline{-12} \\ 3 \end{array}$$

Note: Both questions 6 and 7 have the same numerical answer. Help students to see how the remainder determines what the answer to the problem will be.

14 cars will be needed to transport all of the boys.



8. A restaurant uses about 50 grams of cheese to make a cheese sandwich. How many cheese sandwiches can be made using a one-kilogram block of cheese?

50 g cheese 50 g \longrightarrow **1 sandwich**

2 x 50 g 50 g 50 g **=100 g** \longrightarrow **2 sandwiches**

10 x 100 g

100 g	100 g
100 g	100 g
100 g	100 g
100 g	100 g
100 g	100 g

= 1000 g (or 1 kg) \longrightarrow **20 sandwiches**

9. Harry drank 3 cans of pop during a picnic. The capacity of each can is 333 mL of liquid. How much did Harry drink during the picnic?

333 mL

$\times 3$

999 mL

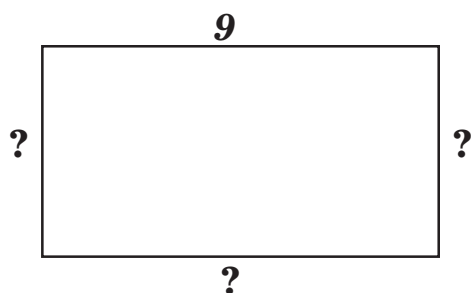
Harry drank 999 mL during the picnic.



Did Harry drink more or less than 1 L of pop? **Less than 1 L.**

In the following problem, you are asked to use your knowledge of perimeter to calculate the length of the sides of a rectangle.

10. The Larson family built a rectangular swimming pool in their back yard. The perimeter of the pool is 28 metres. If the length of one side is 9 metres, what are lengths of the other three sides? Draw a sketch of the pool to help you with your calculations.



$$9 + 9 = 18$$

$$28$$

$$\underline{-18}$$

$$10$$

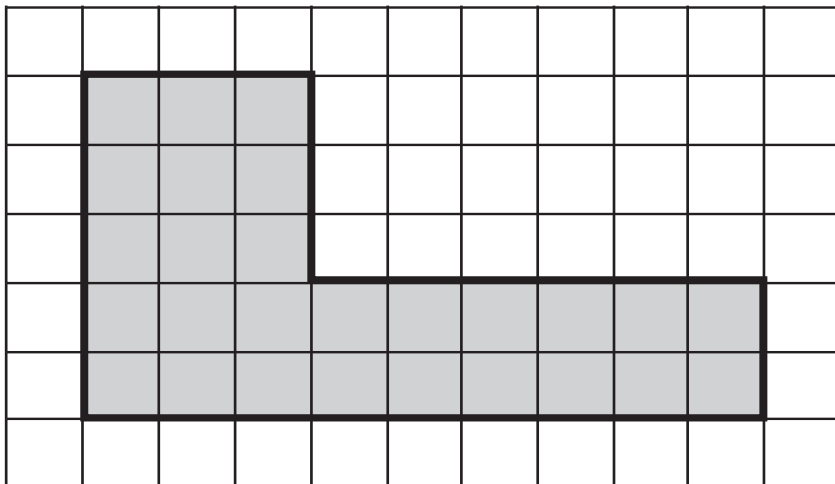
$$\underline{5} + \underline{5} = 10$$



The lengths of the other three sides of the pool are 9 m, 5 m, and 5 m.

In the next question, you are asked to use your knowledge of perimeter and area to solve two problems.

11. Susan's garden is shown below. Each square is 1 square metre. She plans to build a fence around the outside edge of the garden.



- a. How long will the fence be? Show your calculation.

$$P = 3 + 3 + 6 + 2 + 9 + 5 = 28 \text{ m}$$

- b. What is the total area of Susan's garden? 27 m²

In the next problem, one measurement is in kg and one is in g. To do a calculation with two measurements, both must have the same units. Remember what you have learned about moving the decimal to the left or right.

12. Trevor bought 1 kg of ice cream. After he and his friends made milkshakes, only 350 g of ice cream was left. How much ice cream did they use?

	1000 g	
<u>Ice Cream</u>	<u>− 350 g</u>	<i>They used 650 g of ice cream</i>
1 kg = 1000 g	650 g	

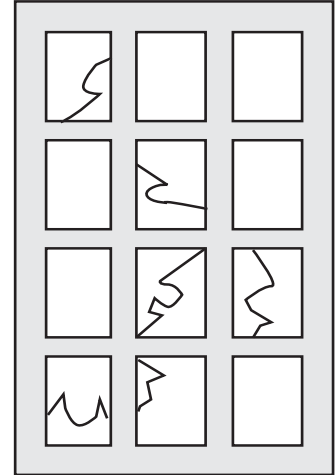
In the following problem, you must calculate the area of one pane of glass. Use that number to calculate how much glass is required to fix all the broken panes.

13. An old window has several broken panes of glass. Each pane of glass is 15 cm by 10 cm. What is the area of one pane of glass? What is the total amount of glass needed if 6 panes are broken?

One pane $15 \times 10 = 150 \text{ cm}^2$

Six panes $6 \times 150 = 900 \text{ cm}^2$

The total area of glass needed is 900 cm^2



Congratulations!

You have completed the work for W3 - Lessons 1 to 5 of the Preview/Review course for Math 4.

Now, it's time to check up on what you have learned. Today, you will write a quiz that reviews the concepts covered in W3 - Lessons 1 to 5.

Before you do the quiz, you may want to go back and look over the work you just completed.

Tell your teacher when you are ready to begin writing this quiz. Good luck!

