(2) Practice

Practice

Practice A, p. 40

Encourage your student to draw bar models for problems 6 and 7.

6: The second sentence tells us that Brian is 5 times as heavy as his son, so draw two bars on top of each other, one with 5 units and one with 1 unit. Then label with the information in the problem.

7: The second sentence tells us that Hugh is twice as heavy as David, so draw that first. Then draw a bar for Matthew which is shorter than Hugh's bar and mark the difference 27 g. Label Matthew's bar with a question mark. From the diagram, we can see that we need to first find Hugh's weight.

8: Your student has not yet learned how to divide 5 by 10. Encourage her to come up with a way to solve this based on her knowledge of money, and the concept of converting units. We can convert the dollars to cents, and then it is easy to divide 500 cents by 10.

Tests

Tests, Unit 7, 2A and 2B, pp. 49-55

Enrichment

⇒ The total length of 4 strings is 100 cm. String A is 9 cm shorter than string B. String B is three times as long as String C. String D is 13 cm longer than String C. How long is the longest string?

Since we are told that string B is three times as long as String A, draw strings B and C first. We do not know at first how much shorter String A is than B, or how much longer String D is than B, or really which is the longest string, but how we draw A and D will not change the method used to solve this problem. If we add 9 cm to A, and subtract 13 cm from D, then we will have 8 units. After we find that 1 unit is 12 cm, we know that B is the longest string, even if our initial drawing is not exact.

1. (a) 5000 g (b) 1950 g (c) 1060 g
   (d) 2805 g (e) 2005 g (f) 3002 g

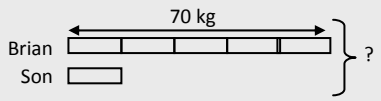
2. (a) 1 kg 905 g (b) 1 kg 55 g (c) 2 kg 208 g
   (d) 3 kg 390 g (e) 3 kg 599 g (f) 5 kg 2 g

3. (a) 3 kg 240 g (b) 5 kg 100 g
   (c) 2 kg 520 g (d) 2 kg 570 g

4. (a) 2 kg 50 g + 3 kg 20 g = 5 kg 70 g
   The total weight is **5 kg 70 g**.
   (b) 3 kg 20 g – 2 kg 50 g = 970 g
   The difference in weight is **970 g**.

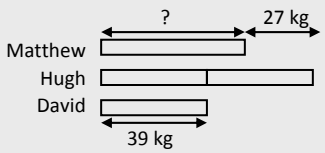
5. 100 kg – 46 kg 540 g = 53 kg 460 g
   Sam's weight is 53 kg 460 g.

6.



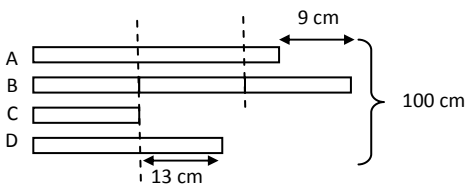
5 units = 70 kg
1 unit = 70 kg ÷ 5 = 14 kg
6 units = 14 kg x 6 = 84 kg
Or: 70 kg + 14 kg = 84 kg
Their total weight is **84 kg**.

7.



Hugh's weight: 39 kg x 2 = 78 kg
Matthew's weight: 78 kg – 27 kg = 51 kg
Matthew weighs **51 kg**.

8. 10 kg: $5 = 500¢
   1 kg: 500¢ ÷ 10 = 50¢
   1 kg of apples costs **50¢**.



8 units = 100 cm + 9 cm – 13 cm = 96 cm
1 unit = 96 cm ÷ 8 = 12 cm
3 units = 12 cm x 3 = 36 cm
The longest string is 36 cm long.

Chapter 6 – Fractions and Money

Objectives

- Express a set of coins as a fraction of a dollar.
- Write an amount of money less than \$1 using either the decimal notation or as a fraction of \$1.
- Simplify fractions with 100 in the denominator.
- Using a set of coins as a set of objects, express the number of one type of coin as a fraction of the total coins.

Notes

In this chapter, students will write amounts of money less than a dollar as a fraction of a dollar.

Students have learned how many pennies, nickels, dimes, and quarters are in a dollar. In a set of coins of the same denomination where the total is a dollar, each coin is an equal part, so a given number of coins out of the number of that type of coin that makes up a dollar can be expressed as a fraction of a dollar. For example, since there are 20 nickels in a dollar, then three nickels is $\frac{3}{20}$ of a dollar. The dollar is the whole.

A set of coins of different denominations can be expressed as fraction of a dollar by putting the number of cents over 100, since there are 100 cents in a dollar, and simplifying, or by renaming the coins into a coin of a different denomination. For example, 2 dimes and 1 nickel is the same as 25 cents, and so is $\frac{25}{100}$ or $\frac{1}{4}$ of a dollar. 2 dimes and a nickel is also the same as a quarter. Since there are 4 quarters in a dollar, one quarter, (or 2 dimes and 1 nickel) is $\frac{1}{4}$ *of a dollar*.

Students will also be asked to look at the set of coins as simply a set of different objects, rather than money. If we have 2 dimes and 1 nickel, then $\frac{2}{3}$ *of the coins* are dimes. The student must therefore distinguish between the dollar as the whole and finding the amount in cents as a fraction of the dollar, or the number of coins as the whole and finding the type of coin as a fraction of a set of coins.

In working with cents as a fraction of a dollar, we are working with a set of equivalent fractions with denominators of 100, 50, 25, 20, 10, 5, 4, and 2.

This chapter brings together several important concepts: counting coins, changing money to different denominations, writing the amount of cents in dollars using a dot (decimal), grouping into equal parts to find the fraction of a whole, simplifying fractions, and the importance of what the whole is for a fraction. It also provides a concrete introduction to the relationship between fractions and decimals. This is just an introduction; do not try to explain what decimal numbers are at this point. Decimal numbers and the relationship between fractions and decimals will be formally taught in *Primary Mathematics* 4B.

Material

- Coins (4 quarters, 20 nickels, 10 dimes, 100 pennies)
- Counters, if you don't have 100 pennies available

(1) Identify right angles

Discussion

Concept p. 130

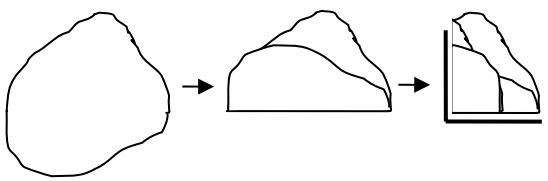
Have your student do this activity. She can use the angle formed to check the angles on the page and in the environment. Have her find out whether the corners on an index card are right angles. They are, so in later activities she can use the corner of an index card to compare angles to a right angle.

Tasks 1-3, p. 131

1: Ask your student what kind of polygon these two figures are. They are both quadrilaterals. Tell him that squares and rectangles are special types of quadrilaterals where all four angles are right angles.

3: You can also ask your student to name each type of polygon. Remind her that for questions like these, we are only looking at the inside angles of the polygon.

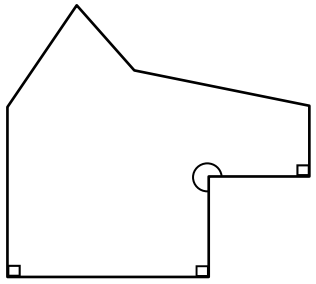
Angles b, c, d, and f are right angles



1. (a) 4 (b) 4
2. B has a right angle.
   C has an angle greater than a right angle.
3. P - 4 angles, 1 right angle. Quadrilateral
   Q - 5 angles, 2 right angles. Pentagon
   R - 4 angles, 2 right angles. Quadrilateral
   S - 5 angles, 3 right angles. Pentagon

Activity

Draw a figure similar to the one shown here and ask your student how many angles are less than a right angle, equal to a right angle, or greater than a right angle. There are three right angles, marked with little squares. The angle marked with a curve should be considered a greater than a right angle, since we are considering only interior angles.



3 right angles
1 angle smaller than a right angle
4 angles greater than a right angle

Ask your student if a quadrilateral could have 0 right angles (yes) and then have him sketch some examples. Then, ask him if a quadrilateral could have only 3 right angles. Let him experiment to see if he can draw such a quadrilateral. Ask him if a triangle could have 2 right angles, and if a pentagon could have 4 right angles. (They cannot.)

Workbook

Exercise 2, pp. 148-150 (Answers p. 141)

Reinforcement

Extra Practice, Unit 12, Exercise 2, pp. 213-214

Test

Tests, Unit 12, 1A and 1B, pp. 235-242