

# **Problem Solving with Model Drawing**

Singapore Math Implementation Project  
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### Grade 3

- 1) Leslie has 75 nickels. Walter has 20 fewer nickels.
  - a. How many nickels does Walter have?
  - b. How many nickels do Leslie and Walter have altogether?
  
- 2) Alice read 20 pages on Wednesday morning and 25 pages in that same afternoon. She read 28 pages on Thursday.
  - a. How many pages did she read on Wednesday?
  - b. How many fewer pages did she read on Thursday than on Wednesday?
  
- 3) The sum of two numbers is 36. The smaller number is one-third the larger number.
  - a. What is the smaller number?
  - b. What is the larger number?
  
- 4) One CD from the “Play-It” music sale costs \$7. Robson bought 4 CDs and had \$3 left. How much money did Robson have at first?
  
  
- 5) There are 18 *Magic Tree House* books on the bookshelf. There are 12 more *Pixie Tricks* books than *Magic Tree House* books. How many books are there altogether?
  
  
- 6) Cheryl had \$42. She bought 2 books of the same price and had \$12 left. What is the cost of one book?

- 7) Jim had 315 stamps. He gave 45 stamps away and kept the rest in an album. If one page of the album contains 9 stamps, how many pages would be needed to contain the rest of the stamps?
- 8) David bought a dictionary and a storybook. The story book cost \$4.50. The dictionary cost \$5.25 more than the storybook.
- How much did the dictionary cost?
  - How much did the two books cost altogether?
- 9) Sally has two piggy-banks. The first piggy-bank contains \$20.07 and the second one contains \$30.15. Sally takes \$3.19 from the first piggy bank. How much more money does the piggy-bank now contain compared to the first one?
- 10) Jenny bought 5 tickets which cost \$22.50 altogether. How much would it cost her to buy 10 tickets? 15 tickets?

## Grade 4

### Multiplication/Division

1. The number of cars is 4 times the number of motorcycles in a town. If there are 4,356 cars, how many motorcycles are there?

### Multi-Step Whole Numbers

2. For the last 4 months, Jake's monthly salary was \$1,895. He saved \$3,032 during the 4 months and spent the rest. How much did he spend?

### Fractions

3. In a class,  $\frac{2}{5}$  of the students wear glasses. If there are 15 students who don't wear glasses, how many students are in the class?

### Measurement

4. Twelve pieces of ribbon, each 75 in. long, are cut from a length of ribbon 1,250 in. long. What is the length of the remaining piece of ribbon?

### Computation Using Model Drawing

5.  $83,384 - 34,393$

## Grade 5

### Multi-Step Whole Numbers

1) Harry bought 155 oranges for \$35. He found that 15 of them were rotten. He sold all the remaining oranges at 7 for \$2. How much money did he make?

### Fractions

2) Tyrone bought a bag of marbles.  $\frac{1}{4}$  of the marbles was blue,  $\frac{1}{8}$  was green, and  $\frac{1}{5}$  of the remainder was yellow. If there were 36 yellow marbles, how many marbles did he buy?

### Ratios

3) The ratio of David's weight to Ryan's weight to Ali's weight is 8:5:4. If Ryan weighs 30 kg., find the total weight of the 3 boys.

### Percents

4) 1500 people took part in a walkathon. 450 of them were school children. The rest were adults. What percentage of the participants were adults?

### Measurement

5) Mrs. Anderson bought 5 yds of cloth. She used the cloth to make 12 napkins of the same size. How much cloth did she use for each napkin? (Give the answer in feet.)

## Grade 6

### Ratios

1) The ratio of the number of men to the number of women in a bus is 3:1. The ratio of the number of women to the number of children is 3:5. If there are 20 children, how many people are there altogether?

### Measurement

2) The total length of three ribbons, A, B, and C is 2.5 m. Ribbon A is 60 cm longer than Ribbon B. Ribbon C is 50 cm longer than Ribbon B. Find the length of Ribbon A.

### Percents

3) Cody's monthly salary was increased by 5% this year. His monthly salary before the increase was \$1400. Find his monthly salary after the increase.

### Speed

4) Daniel took 2 hours to drive from Town A to Town B at an average speed of 60 km/h. How long would he take if he drove at an average speed of 80 km/h?

### Multi-Step Fractions

5)  $\frac{2}{3}$  of the beads in a box is red,  $\frac{1}{4}$  is yellow, and the rest are blue. There are 42 more red beads than blue beads. How many beads are there altogether?

## Grade 7

1. Ali spent \$3 less than  $\frac{3}{5}$  of his money on a book and \$3 more than  $\frac{3}{4}$  his remaining money on a pen. He still had 50 cents left. Which items cost more between the book and the pen?  
(p. 69: #2)
2. The cost of 6 mangoes was the same as the cost of 2 durians. Paul bought 3 mangoes and 4 durians for \$30. Find the cost of one mango.  
(p. 84: #9)
3. A school's computer club has 250 boys and 175 girls. If the number of girls is decreased in the ratio 4:5 while the number of boys is increased in the ratio 6:5, what is the new ratio of boys to girls?  
(p. 181: #18)
4. A car traveling at a uniform speed started at noon and covered the first 150 km of a journey by 3 p.m. Find the time when it had completed the whole journey of 600 km.  
(p. 186: #2)
5. A boy scored 90 marks for his mathematics test. This was 20% more than what he had scored for his geography test. What was his score in geography?  
(p. 194: #11)

## Grade 8

1. A sum of money is divided among Alan, Bill and Carl in the ratio 2 : 4 : 7. If Carl receives \$27 more than Bill, how much more does Bill receive than Alan? (Page 79)
2. 25% of a class of 40 students were girls. When some new girls joined the class, the percentage of girls increased to 40%. How many new girls joined the class? (Page 75)
3. Two books cost \$15 altogether. One costs \$1.50 more than the other. How much does each book cost? (Page 150)

### Ages

4. Three years ago, a man was 5 times as old as his son, but in 2 years time, he will be only 3 times as old as his son. How old is each of them? (Page 199)
5. In an election, there were two candidates. Candidate A received 65% of the votes Cast and secured 2,400 votes more than candidate B. How many people voted? (Page 98)