

Year 6 Problem Solving

Student Name: _____	Grade: _____
Date: _____	Score: _____

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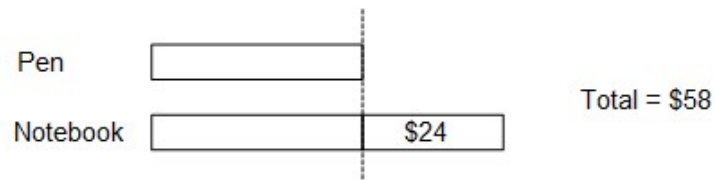
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1 Problem Solving Part 1

1.1 Sum and Difference Problem

Example 1.1.1 John paid \$58 for a pen and a notebook, The notebook costs \$24 dollars more than the pen. Find the cost of the pen and the notebook.

Solution:



There are two items in this question, a pen (cheaper item) and a notebook (expensive item).

*The **Sum** is \$58, and the **Difference** is \$24*

Cheaper item = (Sum - Difference) \div 2

Expensive item = (Sum + Difference) \div 2

Therefore Pen = $\frac{58-24}{2} = \$17$

Notebook = $\frac{58+24}{2} = \$41$

Exercise 1.1.1

- Bob paid for a new pair of glasses with a case for \$124. The case cost \$100 less than the glasses. Find the cost of glasses.

- The sum of two numbers is 66 and the difference of two numbers is 22. Find the value of these two numbers.

Exercise 1.1.2

1. Raymond and his sister Jessica, collect stamps. Jessica has 32 less stamps than Raymond, and together they have 298 stamps. How many stamps does Raymond have?

2. Bonnie is 9 kg heavier than Mary. Their total mass is 95 kg. What is the body mass of Bonnie?

3. Two brothers, Alex and Henry, together receive \$37 pocket money each week. Work out how much each boy receive if:

(a) Alex has \$4 more than Henry;

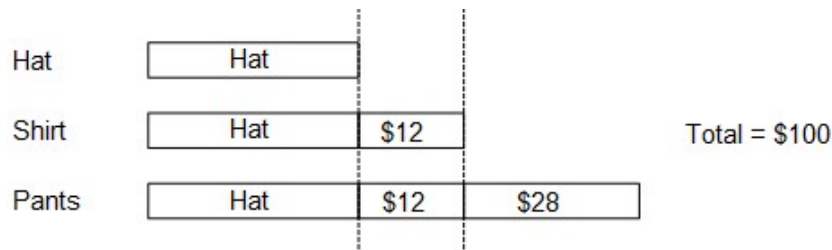
(b) Alex has \$5 less than Henry;

1.2 Practical Exam Questions

1. When the watering can and bucket are full they hold 21 L of water altogether. The watering can holds 15 L more than the bucket. How much water does the bucket hold?
A. 3 L B. 6 L C. 12 L D. 18L.
2. Dolly paid \$180 for a desk and a chair. The chair cost \$30 more than the desk. How much did the chair cost?
A. \$75.00 B. \$85.00 C. \$105 D. \$120.
3. Two numbers have a difference of 12 and their average is 38. What is the smaller number?
A. 32 B. 26 C. 13 D. 25.
4. The average of three numbers is 28. If the middle number is 30 and the difference between the largest number and the smallest number is 14. Find the largest number.
A. 20 B. 34 C. 21 D. 29.
5. In a choir there are three times as many girls as boys. If there are 72 students in the choir, how many are girls?
A. 42 B. 36 C. 68 D. 54
6. When you add two numbers, you get 25 and when you find their difference you get 7. What would you get if you multiplied the numbers?
A. 144 B. 154 C. 84 D. 136
7. Two numbers have a difference of 300 and their average is 340. What is the smaller of the two numbers?
A. 190 B. 320 C. 184 D. 168
8. Dolly has 3 times as many marbles as Anna. If Dolly gives Anna 154 marbles, the two girls will have an equal number of marbles. How many marbles do they have altogether?
A. 462 B. 668 C. 584 D. 616
9. Jessica has 172 stickers. Ray has 15 stickers less than Jessica. John has 24 stickers more than Ray. What is their average number of stickers?
A. 152 B. 168 C. 170 D. 136
10. Charles has twice the amount of money of Adam. Joe has $2\frac{1}{2}$ times more than Charles. If the three children had \$384 altogether, how much did Joe have?
A. \$256 B. \$168 C. \$240 D. \$270

Example 1.2.1 Tony paid \$100 for a hat, a shirt and pair of pants. The shirt cost \$12 more than the hat. The pants cost \$28 more than the shirt. Find the total cost of the shirt and the pair of pants.

Solution:



The **Hat** is the cheapest item in this question.

Let the cost of a **Hat** as a common part of all other items.

Three **Hats** cost $100 - (12 + 12 + 28) = \$48$

One **Hat** costs $48 \div 3 = \$16$.

So the cost of a **Shirt** is $16 + 12 = \$28$

and the cost of a **pair of Pants** is $16 + 12 + 28 = \$56$

\therefore the total cost of the shirt and the pair of pants is $28 + 56 = \$84$.

Exercise 1.2.1 Keith, Mike and George have a total of \$299. Keith has \$25 more than Mike but \$45 less than George. How much did Keith and Mike have altogether?

Exercise 1.2.2

1. Douglas, Ming and Omar each has a bag of marbles. Ming has 3 less marbles than Douglas. Omar has 12 less marbles than Douglas. Which statement is true?

- A. Ming has 15 more marbles than Omar.
- B. Omar has 15 more marbles than Ming.
- C. Omar has 9 more marbles than Ming.
- D. Ming has 9 more marbles than Omar.

2. Carol paid \$5.00 for a packet of pencils, a ruler and an eraser. The ruler cost 50 cents more than the eraser. The pencils cost 3 times as much as the ruler. Find the cost of the pencils.

Exercise 1.2.3

1. Ken, Graham and David have a total of \$127.50. Ken has \$8.50 more than Graham. David has twice as much as money as Ken. How much have Ken and David altogether?

2. Paul has \$14 more than Richard and \$16 more than Amy. Together all three have \$96. How much does Paul have?

3. Peter paid \$118 for a dictionary, a calculator and a ruler. The calculator cost \$20 more than the ruler. The dictionary cost \$54 more than the calculator. How much did Peter pay for the dictionary?

1.3 Quiz

Question 1 (5 marks)

The sum of two numbers is 27. The difference of the same two numbers is seventeen. Find the numbers.

Question 2 (5 marks)

Ken and David own 245 marbles altogether. For every 5 marbles that Ken collected, David collected 2. How many more marbles does Ken have than David?

Question 3 (5 marks)

We won 12 out of every 15 games we played. We lost 9 games. How many games did we play altogether?

Question 4 (5 marks)

Daniel is chasing his brother Bob. For every 9 metres that Daniel runs, Bob runs 7 metres. If they are 30 metres apart, how far must Daniel run in order to reach Bob?

Question 5 (5 marks)

The average weight of Lee and Joe is 68 kg. The average weight of Lee and Sam is 76 kg. If Lee is 3.2 kg heavier than Sam, what is Joe's weight?

Question 6 (5 marks)

Henry and Gary have 1224 stamps altogether. If Henry has 25% more stamps than Gary, find the number of stamps Gary has.

Question 7 (5 marks)

A jug weighs 280g. When the jug is one quarter full of water, the jug and the water together weigh 450 g. What do the jug and water together weigh if the jug is three quarters full?

Question 8 (5 marks)

Kim was given a box of chocolates that weighs 680 grams as a birthday present. She shared two thirds of the chocolates with her friends. The remaining box weighs 320 grams. She then ate half the remaining chocolates. What is the weigh of the rest of the chocolates plus the box?

Question 9 (5 marks)

There are four children in a family, each born in a different year, share a gift of \$1000 according to the following arrangement: each child except the youngest, get \$50 more than his or her next younger brother or sister in the family. How much does the eldest child get?

Question 10 (5 marks)

Linda paid \$112.50 for 3 similar T-shirts and some skirts. There was 1 more skirt than T-shirts. If a T-shirt costs \$2.50 more than a skirt, find the cost of each T-shirt.

Question 11 (5 marks)

After Alex has given \$15 to John, they have equal sums of money. What is the difference between their original sums of money?

Question 12 (5 marks)

Tom and Bob shared a sum of money. Tom received 60% of the money. If Bob received \$36 less than Tom, how much did Bob receive?

Question 13 (10 marks)

Joe has 66 bookmarks, Tom has 34 and Alice has 23. Joe wants them to share the bookmarks equally. How many bookmarks must Joe give away so that three children have the same number of bookmarks?

Question 14 (10 marks)

Bonnie has 82 stickers. Cathy has 28 stickers less than Bonnie. Amy has 17 stickers more than Cathy. Find the average number of stickers for those three girls.

Question 15 (10 marks)

Ana has twice as much money as Edward. Susan has \$24 more than Ana. If they have a total of \$234, how much do Ana and Susan have altogether?

Question 16 (10 marks)

Adam, Bob and Carlo were candidates for school captain. Adam received 162 more votes than Carlo. Bob received 48 more votes than Carlo. Together Adam and Bob scored 386 votes. How many votes did Bob and Carlo receive together?
