

Chapter 1: Whole Numbers (2 Items)

Part 1: Basic Keywords

Keywords	Step-By-Step
<p>Exact 2 Totals given (different total)</p> <p>i.e. Miss Lee bought some pencils for her class of 8 students. Each girl received 5 pencils and each boy received 2 pencils.</p> <p>She bought a total of 22 pencils. How many boys were there in the class?</p>	<p>Assumption:</p> <p>1) Assume opposite to question</p> <p>2) Answer = $\frac{\text{Big Difference}}{\text{Small Difference}}$</p> <p>Assume all girls → 8 girls x 5 pencils = 40 pencils total</p> <p>Answer (number of boys) = $\frac{40 - 22}{5 - 2} = \frac{18}{3} = 6$</p>
<p>Only 1 Total given</p>	<p>Guess and Check (start from middle)</p>
<p>Totals given (items total)</p> <p>i.e. 3 identical blouses and 2 identical dresses cost \$182. 1 such blouse and 1 such dress cost \$78. What is the cost of 1 blouse?</p>	<p>Make one item number same:</p> <p>1) Put into letters</p> <p>2) Multiply to make item same (x2)</p> <p>3) Minus</p> $\begin{array}{r} 3B + 2D = 182 \\ 1B + 1D = 78 \quad (\times 2) \\ \hline 2B + 2D = 156 \end{array}$ <p>Left 1B = 182 - 156 = 26</p>

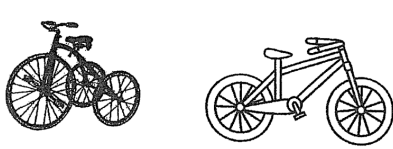
Part 2: Teacher's Handwritten Notes

Mr Tan sold 9 bicycles and tricycles altogether. There were a total of 21 wheels on these bicycles and tricycles. How many tricycles did Mr Tan sell?

total wheels (handwritten)

total items (handwritten)

2 total = assumption! (handwritten)



Tricycle (3 wheels) Bicycle (2 wheels)

① Assume all is opposite to question ⇒ assume all bicycle
9 x 2 = 18 wheels

② no. of ans ⇒ $\frac{\text{large diff}}{\text{small diff}} = \frac{21 - 18}{3 - 2} = 3$ (ANS)

Part 3: Intensive Drills

P3 Math AL1 Topical Mastery

Q1) Mrs. Rajah packed a total of 38 kg of flour into 15 bags. The flour was packed into bags of 2 kg and 3 kg. How many bags of 2-kg flour and how many bags of 3-kg flour were there?

Ans: 7 bags of 2-kg flour and 8 bags of 3-kg flour.

Q2) There are a total of 15 tricycles and cars in a shop. Each tricycle has 3 wheels, and each car has 4 wheels. There are 53 wheels altogether.

(a) How many tricycles are there?

(b) How many cars are there?

Ans: 7 tricycles and 8 cars

Q3) Old MacDonald had the same number of chickens and goats on his farm. Each chicken has 2 legs, while each goat has 4 legs. He counted that there were a total of 216 legs. How many chickens did he have on his farm?

Ans: 36 chickens

Q4) Daisy had fewer than 30 pencils to give away to all her friends. When she gave 6 pencils to each of her friends, she would have 3 pencils left, but when she gave each of them 8 pencils, she would be 3 pencils short. How many friends did she give her pencils away to? (Common Multiples then + (left) or - (short))

Ans: 3 friends

Q5) Rose has 18 pets which consist of chicks and rabbits. There are a total of 42 more rabbit legs than the chicks. How many of her pets are chicks?

Ans: 5 chicks

Q6) 148 eggs are packed into either trays of 10 or 6. 20 trays are used altogether. How many trays have only 6 eggs in them?

Ans: 13 trays with 6 eggs

P3 Math AL1 Topical Mastery

Q7) There are 28 ducks and goats altogether in a farm. If there are 72 legs altogether, how many goats are there?

Ans: 8 goats

Q8) Rahim took part in a spelling competition. For every correct answer, he was awarded 6 points. For every incorrect answer, 3 points were deducted. After 12 questions, he scored a total of 36 points. How many questions did he answer correctly?

Ans: 8

ANSWER KEY**Q1) 2 Totals = Assumption****Question:**

Mrs. Rajah packed a total of 38 kg of flour into 15 bags. The flour was packed into bags of 2 kg and 3 kg. How many bags of 2-kg flour and how many bags of 3-kg flour were there?

Solution:**1. Step 1 (Assume all bags are 3-kg):**

$$15 \times 3 = 45 \text{ kg (total weight if all are 3-kg bags).}$$

2. Step 2 (Find the difference):

$$\text{Large difference} = 45 - 38 = 7 \text{ kg.}$$

$$\text{Small difference} = 3 - 2 = 1 \text{ kg.}$$

$$\text{Number of 2-kg bags} = \frac{7}{1} = 7.$$

3. Find the number of 3-kg bags:

$$15 - 7 = 8.$$

Answer: 7 bags of 2-kg flour and 8 bags of 3-kg flour.

Q2) Assumption**Question:**

There are a total of 15 tricycles and cars in a shop. Each tricycle has 3 wheels, and each car has 4 wheels. There are 53 wheels altogether.

Solution:**1. Step 1 (Assume all vehicles are cars):**

$$15 \times 4 = 60 \text{ wheels.}$$

2. Step 2 (Find the difference):

$$\text{Large difference} = 60 - 53 = 7 \text{ wheels.}$$

$$\text{Small difference} = 4 - 3 = 1 \text{ wheel.}$$

$$\text{Number of tricycles} = \frac{7}{1} = 7.$$

3. Find the number of cars:

$$15 - 7 = 8.$$

Answer: 7 tricycles and 8 cars.

P3 Math AL1 Topical Mastery**Q3) Grouping**

Q3) Old MacDonald had the same number of chickens and goats on his farm. Each chicken has 2 legs, while each goat has 4 legs. He counted that there were a total of 216 legs. How many chickens did he have on his farm?

Answer:

Since Old MacDonald has the **same number** of chickens and goats, let's think of them in pairs:

- **One chicken and one goat** make a pair.
- The chicken has **2 legs**, and the goat has **4 legs**.
- So, each pair has **$2 + 4 = 6$ legs**.

Now, the total number of legs is **216**.

To find out how many pairs there are, we divide the total legs by the number of legs per pair:

- **$216 \text{ legs} \div 6 \text{ legs per pair} = 36 \text{ pairs}$**

Since each pair has **1 chicken**, there are **36 chickens**.

So, Old MacDonald had 36 chickens on his farm.

Q4) Common Multiples

Q4) Daisy had fewer than 30 pencils to give away to all her friends. When she gave 6 pencils to each of her friends, she would have 3 pencils left, but when she gave each of them 8 pencils, she would be 3 pencils short. How many friends did she give her pencils away to?

Answer:

Step 1: Find Total Pencils Using Multiples

- **Multiples of 6 plus 3 (Total Pencils):**
 - $6 \times 1 + 3 = 9$
 - $6 \times 2 + 3 = 15$
 - $6 \times 3 + 3 = 21$
 - $6 \times 4 + 3 = 27$
- **Multiples of 8 minus 3 (Total Pencils):**
 - $8 \times 1 - 3 = 5$
 - $8 \times 2 - 3 = 13$
 - $8 \times 3 - 3 = 21$
 - $8 \times 4 - 3 = 29$

Step 2: Find the Common Total

- Common total pencils: **21**

Step 3: Calculate the Number of Friends

- **Using 6 pencils each:**
 - $21 - 3 = 18$ pencils distributed
 - $18 \div 6 = 3$ friends
- **Using 8 pencils each:**
 - $21 + 3 = 24$ pencils needed
 - $24 \div 8 = 3$ friends

Answer: Daisy gave pencils to **3 friends**.

P3 Math AL1 Topical Mastery**Q5) 1 Total only and 2 unknowns = Guess and Check**

Q5) Rose has 18 pets which consist of chicks and rabbits. There are a total of 42 more rabbit legs than the chicks. How many of her pets are chicks?

Answer:

- Total pets: 18

Option 1: Try 9 chicks and 9 rabbits

- Chick legs: $9 \times 2 = 18$ legs
- Rabbit legs: $9 \times 4 = 36$ legs
- Difference in legs: $36 - 18 = 18$ legs (Does not match the required 42)

Option 2: Try 5 chicks and 13 rabbits

- Chick legs: $5 \times 2 = 10$ legs
- Rabbit legs: $13 \times 4 = 52$ legs
- Difference in legs: $52 - 10 = 42$ legs (Matches the required 42)

Conclusion:

Rose has 5 chicks.

Q6) 2 Totals = Assumption

Q6) 148 eggs are packed into either trays of 10 or 6. 20 trays are used altogether. How many trays have only 6 eggs in them?

Answer:

- Assume all trays are 10-egg trays:
 - Total eggs = $20 \times 10 = 200$ eggs
- Difference between assumed and actual eggs:
 - $200 - 148 = 52$ eggs
- Difference per tray when replacing a 10-egg tray with a 6-egg tray:
 - $10 - 6 = 4$ eggs
- Number of trays to replace (number of 6-egg trays):
 - $52 \div 4 = 13$ trays

There are 13 trays that have only 6 eggs in them.

Q7) 2 Totals = Assumption

Q7) There are 28 ducks and goats altogether on a farm. If there are 72 legs altogether, how many goats are there?

Answer:

- Assume all 28 animals are ducks (2 legs each):
 - Total legs = $28 \times 2 = 56$ legs
- Difference between actual and assumed legs:
 - $72 - 56 = 16$ extra legs
- Each goat has 2 more legs than a duck (since $4 - 2 = 2$):
 - Number of goats: $16 \div 2 = 8$ goats

There are 8 goats on the farm.

Q8) 2 Totals = Assumption

Workings:

1. **Assume all answers were correct:**
Total points if all 12 answers were correct = $12 \times 6 = 72$.
2. **Difference between assumed and actual points:**
Difference = $72 - 36 = 36$.
3. **Points difference between 1 correct and 1 wrong answer:**
Difference per change = $6 + 3 = 9$.
4. **Number of incorrect answers:**
Number of incorrect answers = $36 \div 9 = 4$.
5. **Number of correct answers:**
Total questions = 12.
Correct answers = $12 - 4 = 8$.