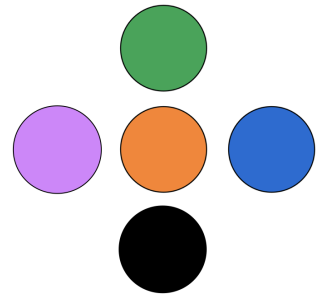


Exploring

1) Counters in Line 1

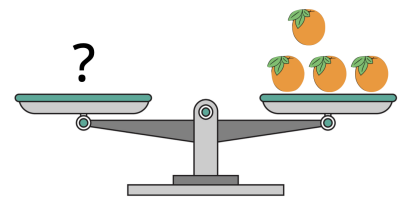
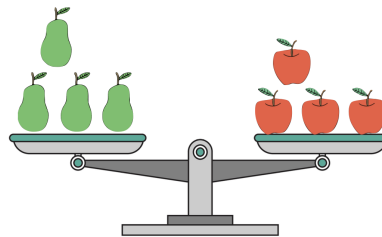
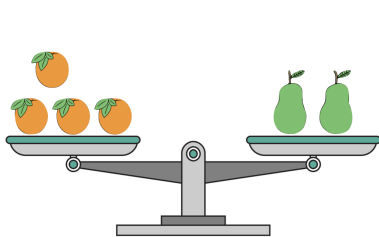
You have 5 counters. They are green, purple, black, orange and blue. Put the counters in a line in the correct order using the clues below:

- The green counter only touches the blue counter.
- The black counter is between the orange and purple counters.
- The orange counter is in the middle.
- Green is the first counter.



2) Fruit Scales 1

The scales below show a balance of different fruits.
How many apples will balance 4 oranges?



3) Sports Day

38 children are on a bus on their way to a Sports Day.
They will either play a game of basketball or soccer.
There are 4 more basketball players on the bus than soccer players.
How many soccer players are there on the bus?



6) Task Card 6

Rearrange these jellybeans so that:

The last jellybean is yellow.

The first jellybean is orange.

The pink jellybeans do not touch.



Hint: Where must the green jellybean go?

Copyright © 2024 Australasian Problem Solving Mathematical Olympiads (APSMO) Inc. and Mathematical Olympiads for Elementary and Middle Schools. All rights reserved.

7) Task Card 7

Wendy is thinking of a number.

She subtracts 4 and multiplies the answer by 8.

Then she adds 4.

Her new number is 36.

What number did she begin with?



Hint: If Wendy's last step was adding 4, what's the first working backwards step?

Copyright © 2024 Australasian Problem Solving Mathematical Olympiads (APSMO) Inc. and Mathematical Olympiads for Elementary and Middle Schools. All rights reserved.

8) Task Card 8

Luna has four times as much money as Bethany.

Luna has twice as much money as Dylan.

Bethany has \$2 more than Matt.

Dylan has \$12.

How much money do Matt, Bethany and Luna have?



Hint: Draw a bar diagram.

Copyright © 2024 Australasian Problem Solving Mathematical Olympiads (APSMO) Inc. and Mathematical Olympiads for Elementary and Middle Schools. All rights reserved.

Extension

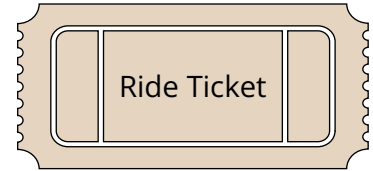
2.4) Tickets at the Fun Fair

Matteo is visiting a fun fair.

One Lucky Dip ticket and 2 Ride tickets will cost him \$12.00.

One Ride ticket and 2 Lucky Dip tickets will cost him \$9.00.

How much will he pay if he buys one Ride ticket and one Lucky Dip ticket?



2.5) Mayra's Ribbon

Mayra had a ribbon.

She cut off 50cm to wrap a present.

From the ribbon that was left, she cut off half to make a bow.

She then had 30cm of ribbon left.

How many centimetres long was Mayra's original ribbon?



Preparation Task #1

Dartboard Challenges

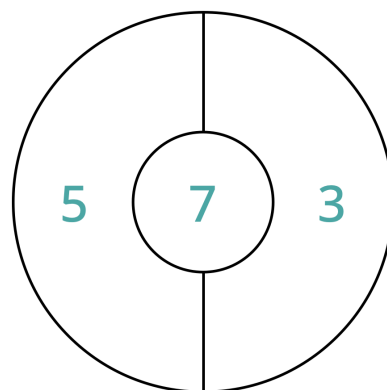
Rebekah and Sung are working together to solve a problem.

In this problem, 3 darts will land somewhere on the board and earn points.

Their teacher wrote some possible scores up on the whiteboard:

17 11 23 9 14 19

Right away, Sung said, 'There's **no way** someone could score **14**.'



Think about the 3 numbers on the dart board.

Explain how Sung new right away that 14 is an impossible score.

Find the other score in the list that is impossible to get.

Prove that there is no way to get that score.

Make a list of all scores that are possible when 3 darts land on the dartboard.

You might like to organise them from the **lowest** to **highest** score.

Find scores that you can get in more than one way.

Question Card 4

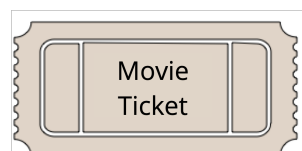
Off to the Movies

Tickets to see a movie cost \$3 for children and \$7 for adults.

A group of 6 people go to see a movie.

Together, they pay \$34 for their tickets.

How many people are children and how many are adults?



Copyright © 2025 Australasian Problem Solving Mathematical Olympiads (APSMO) Inc. and Mathematical Olympiads for Elementary and Middle Schools. All rights reserved.

Question Card 5

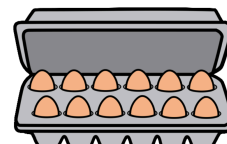
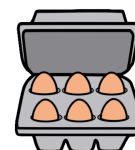
Hector's Eggs

Hector has 7 egg cartons in his trolley.

Each carton holds either 12 or 6 eggs.

Altogether, he has 66 eggs.

How many of the 6 egg cartons does Hector have?

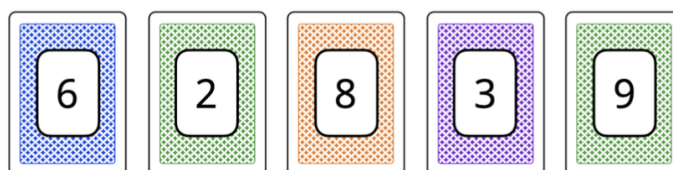


Copyright © 2025 Australasian Problem Solving Mathematical Olympiads (APSMO) Inc. and Mathematical Olympiads for Elementary and Middle Schools. All rights reserved.

Question Card 6

5 Number Cards

I have five number cards. If I make the largest odd number possible with these digits and then subtract the lowest even number I can make with them, what is the result?

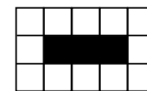
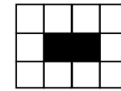


Copyright © 2025 Australasian Problem Solving Mathematical Olympiads (APSMO) Inc. and Mathematical Olympiads for Elementary and Middle Schools. All rights reserved.

Challenge #3

Each figure shown is formed by surrounding one row of black squares with white squares.

How many white squares will surround one row of 50 black squares?



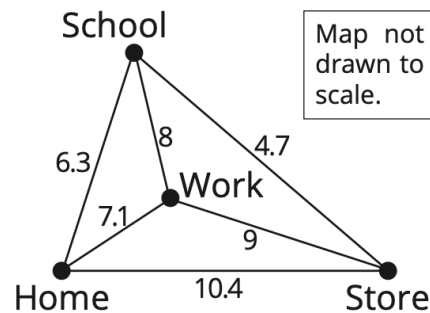
Copyright © 2024 Australasian Problem Solving Mathematical Olympiads (APSMO) Inc. and Mathematical Olympiads for Elementary and Middle Schools. All rights reserved.

Challenge #4

Sheila starts from home and needs to stop at her son's school, the store, and work, in some order, before returning home.

The map shown uses distances in kilometres.

How many kilometres is Sheila's shortest route?



Copyright © 2024 Australasian Problem Solving Mathematical Olympiads (APSMO) Inc. and Mathematical Olympiads for Elementary and Middle Schools. All rights reserved.

Challenge #5

If 3 identical robots can make 5 widgets in 2 hours, how many widgets can 15 identical robots make in 8 hours?



Copyright © 2024 Australasian Problem Solving Mathematical Olympiads (APSMO) Inc. and Mathematical Olympiads for Elementary and Middle Schools. All rights reserved.

Answers

Page 1:

- Green, blue, orange, black and finally purple.
- 2 apples to balance 4 oranges.
- There are 17 soccer players on the bus.

Page 2:

- Orange, pink, green, pink then yellow.
- 8
- Matt has \$4.00, Bethany has \$6.00, and Luna has \$24.00.

Page 3:

- Matteo will pay \$7.00 if he buys one Ride ticket and one Lucky Dip ticket.
- Mayra started with 110 cm of ribbon.

Page 4:

- 50 black squares
- The route is Home-School-Store-Work-Home. The total distance is $6.3 + 4.7 + 9 + 7.1 = 27.1$ kilometres.
- Determine the number of widgets 15 robots can make in 2 hours. Then determine the number of widgets the 15 robots can make in 8 hours.

Robots	3	6	12	15	15	15
Hours	2	2	2	2	4	8
Widgets	5	10	20	25	50	100

Page 5:

- Sung knew that 3 odd numbers must add up to an odd number. 14 is an impossible score.
- The other score in the list that is impossible is 23. The highest score with 3 darts is $7 + 7 + 7 = 21$.
- With 3 darts you can score 9, 11, 13, 15, 17, 19 and 21.
- Some examples of scores that you can get in more than one way include
15: $3 + 5 + 7$ and $5 + 5 + 5$,
17: $3 + 7 + 7$ and $5 + 5 + 7$.
 There are more.

Page 6:

- There are 2 children and 4 adults who attend the movies together.
- Hector has three 6 egg cartons.
- 74 925