

### 1) Task Card 1



Topaz has 3 birthday presents.

One present has a blue bow, one has a pink bow and the other one has an orange bow.  
She is going to open them one by one.

How many different ways can she open her presents?



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

### 2) Task Card 2



Farmer Aster is going to put a new fence around a paddock.

The paddock is a square shape.

Farmer Aster will put a fence post in each corner and then 3 more fence posts on each side.

How many fence posts will Farmer Aster need?

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

### 3) Task Card 3



Calleigh and Mason have a secret they both know.

Calleigh tells the secret to 4 friends.

Mason tells the secret to twice as many friends as Calleigh did.

Altogether, how many people know the secret?

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

### 9) Task Card 9



Dale is shopping at the mall.

After buying a book he goes up 2 levels in a lift to level 4 where he buys a cap.

Dale then goes down 3 levels to have lunch at a cafe.

Dale wants to go to level 5 next.

How many levels away is he?

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

### 10) Task Card 10



Ian and Sue ate all 30 jelly beans in the packet.

Ian ate 6 more jelly beans than Sue.

How many did Sue eat?

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

### 1) Task Card 1



Topaz has 3 birthday presents.

One present has a blue bow, one has a pink bow and the other one has an orange bow.  
She is going to open them one by one.

How many different ways can she open her presents?



**Hint:** How many different ways are possible if Topaz opens the blue present first?

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

### 2) Task Card 2



Farmer Aster is going to put a new fence around a paddock.

The paddock is a square shape.

Farmer Aster will put a fence post in each corner and then 3 more fence posts on each side.

How many fence posts will Farmer Aster need?

**Hint:** Draw the square

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

### 3) Task Card 3



Calleigh and Mason have a secret they both know.

Calleigh tells the secret to 4 friends.

Mason tells the secret to twice as many friends as Calleigh did.

Altogether, how many people know the secret?

**Hint:** Don't forget Calleigh and Mason

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

### 9) Task Card 9



Dale is shopping at the mall.

After buying a book he goes up 2 levels in a lift to level 4 where he buys a cap.

Dale then goes down 3 levels to have lunch at a cafe.

Dale wants to go to level 5 next.

How many levels away is he?

**Hint: What level is the cafe on?**

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

### 10) Task Card 10



Ian and Sue shared 30 jelly beans.

Ian ate 6 more jelly beans than Sue.

How many jellybeans did Sue eat?

**Hint: Use counters as jellybeans**

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

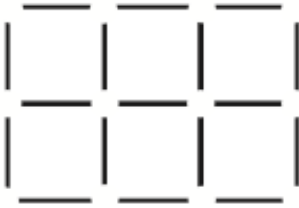


## Task Card Answers

- 1) 6
- 2) 16
- 3) 14 people know the secret
- 4) 10
- 5) 10
- 6) 10
- 7) 10
- 8) 10
- 9) 4 levels away
- 10) 12 jellybeans

### Challenge #1

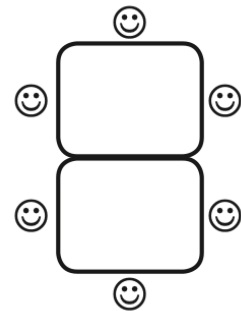
In this diagram, 17 toothpicks are used to form a 2-square by 3-square rectangle.  
How many toothpicks would be needed to form a 6-square by 8-square rectangle?



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

### Challenge #2

4 people can be seated at a single card table.  
If two tables are placed end to end, 6 people can be seated as shown in the diagram.  
How many tables must be placed end to end to seat 22 people?



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

### Challenge #3

The floor of a rectangular room is completely covered with square tiles.  
The room is 9 tiles long and 5 tiles wide.  
Find the number of tiles that touch the walls or door of the room.



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

## Solutions:

### Challenge #1

#### 110 toothpicks

In each row there is one more vertical toothpick than there are squares. This means a row that has 8 squares across would have 9 vertical toothpicks. Since the rectangle has 6 rows, there is a total of  $6 \times 9 = 54$  vertical toothpicks. Each column has one more horizontal toothpick than there are squares. This means a column that has 6 squares down has 7 horizontal toothpicks. Since the rectangle has 8 columns, there is a total of  $8 \times 7 = 56$  horizontal toothpicks.

$54 + 56 = 110$  **toothpicks** are needed to form the 6-square by 8-square rectangle.

### Challenge #2

#### 10 tables

Remove the 2 people from the end seats. The remaining 20 people will be seated 2 to a table. This will require 10 tables. Reseating the 2 people in the end seats does not require any additional tables. Then 10 tables placed end to end will seat 22 people.

### Challenge #3

#### 24 tiles

Draw a diagram, and count the tiles that touch the edges.

**24 tiles** touch the walls.

