

Reasoning and Problem Solving

Step 11: Correspondence Problems

National Curriculum Objectives:

Mathematics Year 4: (4C8) [Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as \$n\$ objects are connected to \$m\$ objects](#)

Differentiation:

Questions 1, 4 and 7 (Reasoning)

Developing Identify and explain missing values by identifying the correspondence between n objects and m objects. Includes 2, 3, 4, 5 and 8 times table with some pictorial support.

Expected Identify and explain missing values by identifying the correspondence between n objects and m objects. All table facts with some pictorial support.

Greater Depth Identify and explain missing values by identifying the correspondence between n objects and m objects. All table facts with no pictorial support.

Questions 2, 5 and 8 (Problem solving)

Developing Calculate the possible combinations of values by identifying the correspondence between n objects and m objects. Includes 2, 3, 4, 5 and 8 times table with some pictorial support.

Expected Calculate the possible combinations of values by identifying the correspondence between n objects and m objects. All table facts with some pictorial support.

Greater Depth Calculate the possible combinations of values by identifying the correspondence between n objects and m objects. All table facts with no pictorial support.

Questions 3, 6 and 9 (Reasoning)

Developing Explain which statement is correct by identifying the correspondence between n objects and m objects. Includes 2, 3, 4, 5 and 8 times table with some pictorial support.

Expected Explain which statement is correct by support identifying the correspondence between n objects and m objects. All table facts with some pictorial support.

Greater Depth Explain which statement is correct by identifying the correspondence between n objects and m objects. All table facts with no pictorial support.

More [Year 4 Multiplication and Division](#) resources.

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Correspondence Problems

Correspondence Problems

1a. Dani is making a bouquet of flowers.

Pot 1	Pot 2
?	rose peony orchids

There are 36 combinations of flowers.

How many different flowers could be in pot 1? Convince me.



R

1b. Julia is buying winter clothes.

Hats	Scarves
black stripy purple spotty green	?

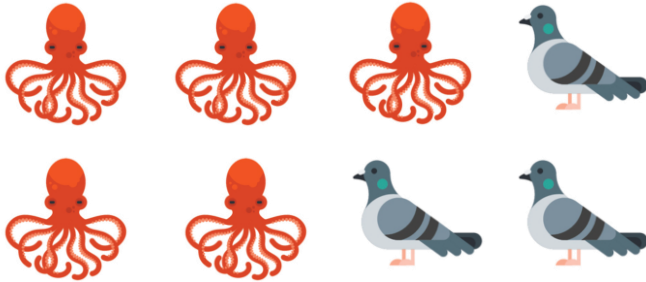
There are 30 combinations of hats and scarves.

How many different scarves could there be? Convince me.



R

2a. There are 46 legs in total. This is made up of octopus and birds.

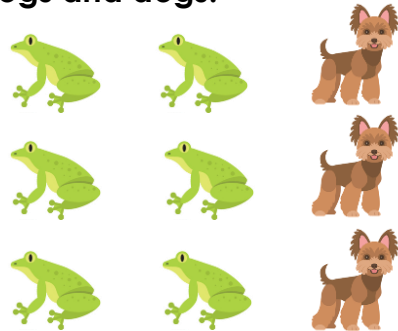


What combination of birds and octopus could there be?
Find 2 possibilities.



PS

2b. There are 48 legs in total. This is made up of frogs and dogs.



What combination of frogs and ladybirds could there be?
Find 2 possibilities.



PS

3a. Pippa and Saif are looking at bugs in 2 bug hotels. There are a total of 32 different combinations of bugs.



Pippa

I think there are 12 bugs in hotel A and 3 bugs in hotel B.

I think there are 8 bugs in hotel A and 4 bugs in hotel B.



Saif

Who is correct? Prove it.



R

3b. Grace and Ben are in a shop buying biscuits from 2 shelves. There are a total of 40 different combinations of biscuits.



Grace

I think there are 8 biscuits on shelf A and 5 biscuits on shelf B.

I think there are 8 biscuits on shelf A and 4 biscuits on shelf B.



Ben

Who is correct? Prove it.



R

Correspondence Problems

Correspondence Problems

4a. Suzi is making confetti from petals.

Pot 1	Pot 2	Pot 3
crocus daisy rose peony orchids	?	?

There are 50 combinations of flowers.

How many different flowers could be in pot 2 and pot 3? Convince me.



R

4b. Jordan is buying plants for his garden.

Shelf 1	Shelf 2	Shelf 3
?	yukka lavender foxglove honeysuckle	?

There are 48 combinations of plants.

How many different plants could be on shelf 1 and shelf 3? Convince me.



R

5a. There are 100 legs in total. This is made up of dogs and spiders.



What combination of dogs and spiders could there be?
Find 2 possibilities.



PS

5b. There are 88 legs in total. This is made up of ladybirds and koala bears.



What combination of ladybirds and koala bears could there be?
Find 2 possibilities.



PS

6a. Debbie and Tom are in a pet shop buying fish from 2 tanks. There are a total of 60 different combinations of fish.



Debbie

I think there are 12 fish in tank A and 5 fish in tank B.

I think there are 6 fish in tank A and 10 fish in tank B.



Tom

Who is correct? Prove it.



R

6b. Alex and Isla are in a bakery buying cakes from 2 boxes. There are a total of 36 different combinations of cakes.



Alex

I think there are 6 cakes on shelf A and 8 cakes on shelf B.

I think there are 9 cakes on shelf A and 4 cakes on shelf B.



Isla

Who is correct? Prove it.



R

Correspondence Problems

Correspondence Problems

7a. George is making a fruit salad.

Fruit Basket 1	Fruit basket 2	Fruit basket 3
?	?	?

There are 48 combinations of fruits.

How many different fruits could be in basket 1, basket 2 and basket? Convince me.



R

7b. Livia is making bouquets of flowers.

Pot 1	Pot 2	Pot 3
?	?	?

There are 60 combinations of flowers.

How many different flowers could be in pot 1, pot 2 and pot 3? Convince me.



R

8a. There are 102 legs in total. This is made up of ladybirds and spiders. There are an odd number of ladybirds.

ladybird
6 legs

spiders
8 legs

What combination of ladybirds and spiders could there be? Find 3 possibilities.



PS

8b. There are 112 fins in total. This is made up of orca whales and sharks. There are more sharks than orca whales.

orca
4 fins

shark
8 fins

What combination of orca whales and sharks could there be? Find 3 possibilities.



PS

9a. Liam and Zara are in a shop buying books from 3 shelves. There are a total of 72 different combinations of books.



Liam

I think there are 12 books on shelf A, 6 books on shelf B and 1 book on shelf C because $12 \times 6 \times 1 = 72$.

I think there are 3 books on shelf A, 3 books on shelf B and 8 books on shelf C because $3 \times 3 \times 8 = 72$.



Zara

Who is correct? Prove it.



R

9b. Lila and Rudy are in a bakery buying loaves from 3 boxes. There are a total of 84 different combinations of loaves.



Lila

I think there are 4 loaves on shelf A, 2 loaves on shelf B and 11 loaves on shelf C because $4 \times 2 \times 11 = 84$.

I think there are 7 loaves on shelf A, 6 loaves on shelf B and 2 loaves on shelf C because $42 \times 2 = 84$.



Rudy

Who is correct? Prove it.



R

Reasoning and Problem Solving Correspondence Problems

Developing

- 1a. 12 flowers in pot 1 ($12 \times 3 = 36$)
2a. Various answers, for example: 5 octopus and 3 birds ($5 \times 8 + 3 \times 2 = 46$); 4 octopus and 7 birds ($4 \times 8 + 7 \times 2 = 46$)
3a. Saif is correct because $8 \times 4 = 32$. Pippa is incorrect because $12 \times 3 = 36$, not 32.

Expected

- 4a. Various answers, for example: 2 flowers are missing from pot 2 and 5 from pot 3 ($5 \times 2 \times 5 = 50$).
5a. Various answers, for example: 10 spiders and 5 dogs ($10 \times 8 + 5 \times 4 = 100$); 12 spiders and 1 dog ($12 \times 8 + 1 \times 4 = 100$)
6a. Both Debbie and Tom are correct because $12 \times 5 = 60$ and $10 \times 6 = 60$.

Greater Depth

- 7a. Various answers, for example: 2 fruits in column 1, 12 fruits in column 2 and 2 fruits in column 3 ($2 \times 12 \times 2 = 48$).
8a. Various answers, for example: 1 ladybird and 12 spiders ($1 \times 6 + 12 \times 8 = 102$); 5 ladybirds and 9 spiders ($5 \times 6 + 9 \times 8 = 102$); 9 ladybirds and 6 spiders ($9 \times 6 + 6 \times 8 = 102$); 13 ladybirds and 3 spiders ($13 \times 6 + 3 \times 8 = 102$).
9a. Both Liam and Zara could be correct because both $12 \times 6 \times 1$ and $3 \times 3 \times 8$ equal 72. They have both used different methods for calculating the answer.

Reasoning and Problem Solving Correspondence Problems

Developing

- 1b. 6 scarves missing ($5 \times 6 = 30$)
2b. Various answers, for example: 7 frogs and 5 dogs ($7 \times 4 + 5 \times 4 = 48$); 1 frog and 11 dogs ($1 \times 4 + 11 \times 4 = 48$);
3b. Grace is correct because $5 \times 8 = 40$. Ben is incorrect because $8 \times 4 = 32$, not 40.

Expected

- 4b. Various answers, for example: 3 plants are missing from shelf 1 and 4 from shelf 3 ($3 \times 4 \times 4 = 48$).
5b. Various answers, for example: 4 koalas and 12 ladybirds ($4 \times 4 + 12 \times 6 = 88$); 7 koalas and 10 ladybirds ($7 \times 4 + 10 \times 6 = 88$)
6b. Isla is correct because $9 \times 4 = 36$. Alex is incorrect because $6 \times 8 = 48$, not 36.

Greater Depth

- 7b. Various answers, for example: 5 flowers in pot 1, 3 flowers in pot 2 and 4 flowers in pot 3 ($5 \times 3 \times 4 = 60$)
8b. Various answers, for example: 10 sharks and 8 whales ($10 \times 8 + 8 \times 4 = 112$); 11 sharks and 6 whales ($11 \times 8 + 6 \times 4 = 112$); 12 sharks and 4 whales ($12 \times 8 + 4 \times 4 = 112$).
9b. Rudy is correct because $7 \times 6 = 42$ and $42 \times 2 = 84$. Lila has calculated $4 \times 2 \times 11$ which equals 88, not 84.