

# Discussion Problems

## Step 9: Mixed Addition and Subtraction

### National Curriculum Objectives:

Mathematics Year 6: (6F2) [Use common factors to simplify fractions; use common multiples to express fractions in the same denomination](#)

Mathematics Year 6: (6F3) [Compare and order fractions, including fractions > 1](#)

Mathematics Year 6: (6F4) [Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions](#)

Mathematics Year 6: (6F11) [Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts](#)

### About this resource:

This resource has been designed for pupils who understand the concepts within [this step](#). It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

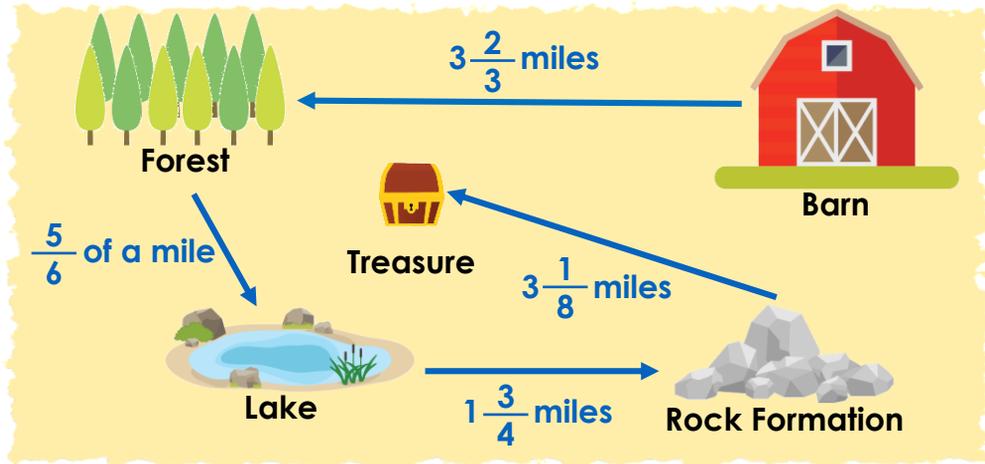
We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More [Year 6 Fractions](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

## Mixed Addition and Subtraction

1. Three friends are doing a treasure hunt. Below is a map (not drawn to scale) showing the locations they need to visit for the clues.



Toby has travelled a  $\frac{1}{2}$  mile from the rock formation towards the treasure.

Geraldine will reach the lake in  $\frac{1}{6}$  of a mile.

Ben has travelled  $\frac{5}{12}$  of a mile from the lake towards the rock formation but realises he has left his water bottle at the forest so needs to go back and get it.

Investigate how much further each child must travel to reach the treasure.

DP

2. Gary and Neil are trying to crack a code on a safe. To do this, they need to make 2 and a quarter, but Gary can only use addition and Neil can only use subtraction. Below is as far as they have got with their calculations.



Gary

$$\frac{\square}{8} + \frac{3}{\square} = 2\frac{1}{4}$$

Neil

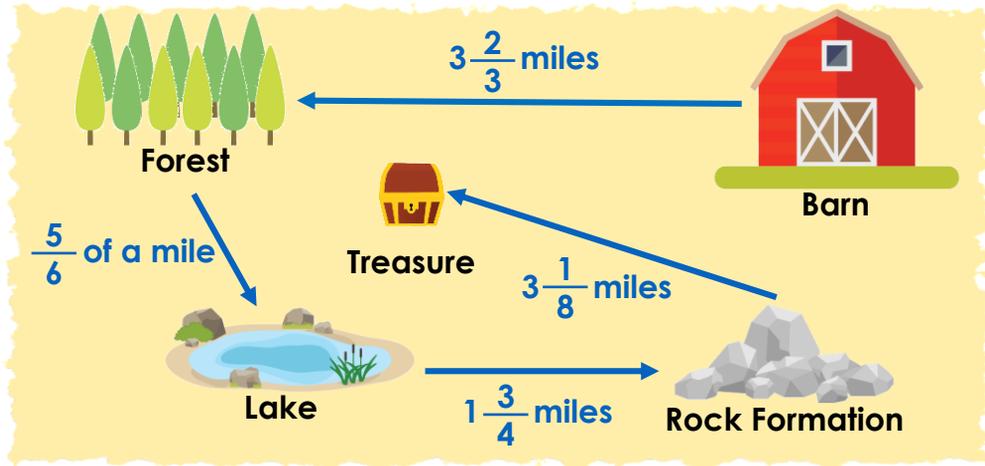
$$\square\frac{\square}{8} - \frac{5}{\square} = 2\frac{1}{4}$$

Explore what other numbers they could use in their statements to reach the required number to unlock the safe.

DP

## Mixed Addition and Subtraction

1. Three friends are doing a treasure hunt. Below is a map (not drawn to scale) showing the locations they need to visit for the clues.



Toby has travelled a  $\frac{1}{2}$  mile from the rock formation towards the treasure.  **$2\frac{5}{8}$  miles to go.**

Geraldine will reach the lake in  $\frac{1}{6}$  of a mile.  **$5\frac{1}{24}$  miles to go.**

Ben has travelled  $\frac{5}{12}$  of a mile from the lake towards the rock formation but realises he has left his water bottle at the forest so needs to go back and get it.  **$6\frac{23}{24}$  miles to go.**

Investigate how much further each child must travel to reach the treasure.

DP

2. Gary and Neil are trying to crack a code on a safe. To do this, they need to make 2 and a quarter, but Gary can only use addition and Neil can only use subtraction. Below is as far as they have got with their calculations.



Gary

$$\frac{\boxed{12}}{8} + \frac{3}{\boxed{4}} = 2\frac{1}{4}$$

Neil

$$\boxed{3}\frac{\boxed{4}}{8} - \frac{5}{\boxed{4}} = 2\frac{1}{4}$$

Explore what other numbers they could use in their statements to reach the required number to unlock the safe.

**Various answers; one example is shown above.**

DP