

Discussion Problems

Step 7: One-Step Equations

National Curriculum Objectives:

Mathematics Year 6: (6A1) [Express missing number problems algebraically](#)

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.

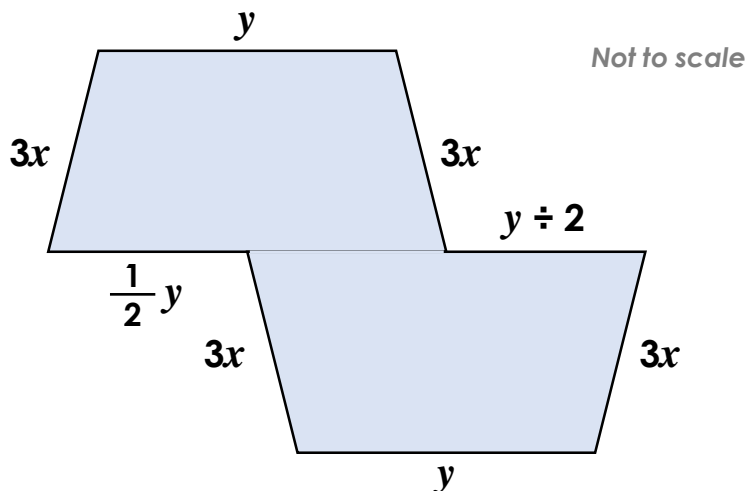
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One-Step Equations

1. A construction company has been hired to build a new swimming pool for a hotel.

Amy the Architect has come up with the design below, which has a total perimeter of 135m.



Investigate the possible values of x and y .

DP

2. Below are the rules for a game based on one-step equations.

Each player takes it in turns to roll a dice. Each player's roll determines the value of n for equation 1. Work out the equation and roll the dice again. Repeat the process for equation 2 and equation 3. Finally, find the sum of all three equations. The player with the greatest total wins.



| | | | | | |
|------------|----------------|----------|-----|---|---|
| Equation 1 | n | \times | 0.5 | = | ? |
| Equation 2 | $4\frac{1}{2}$ | \div | n | = | ? |
| Equation 3 | -0.75 | + | n | = | ? |

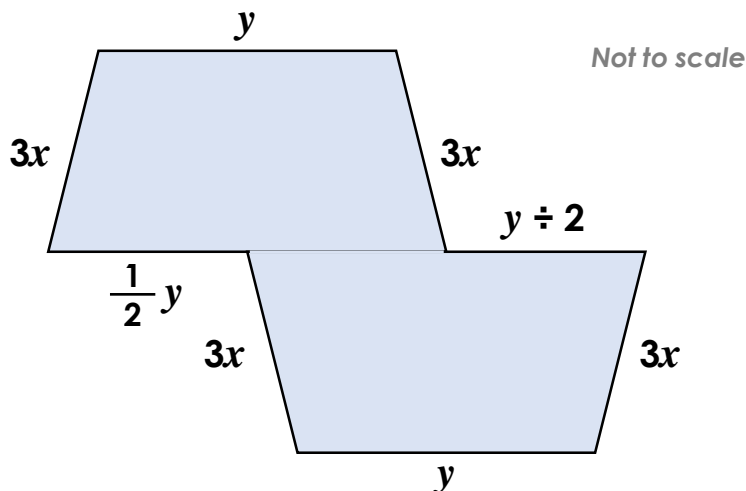
Explore different possible solutions to the equations above.

DP

One-Step Equations

1. A construction company has been hired to build a new swimming pool for a hotel.

Amy the Architect has come up with the design below, which has a total perimeter of 135m.



Investigate the possible values of x and y .

$x = 2.5, y = 35$

DP

2. Below are the rules for a game based on one-step equations.

Each player takes it in turns to roll a dice. Each player's roll determines the value of n for equation 1. Work out the equation and roll the dice again. Repeat the process for equation 2 and equation 3. Finally, find the sum of all three equations. The player with the greatest total wins.



| | | | | | |
|------------|----------------|----------|------------|----------|--------------|
| Equation 1 | 6 | x | 0.5 | = | 3 |
| Equation 2 | $4\frac{1}{2}$ | \div | 4 | = | 1.125 |
| Equation 3 | -0.75 | + | 2 | = | 1.25 |

Explore different possible solutions to the equations above.

Various answers, for example: as shown above. The sum of all three calculations above is 5.375.

DP