Answers: Introduction to simultaneous equations

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Summary

Answers to questions relating to the guide on introduction to simultaneous equations.

These are the answers to Questions: Introduction to simultaneous equations.

Please attempt the questions before reading these answers!

Q1

1.1. The second equation is a multiple of the first. This means there are infinitely many solutions.

1.2. The second equation is also a multiple of the first. Thus, there are infinitely many solutions.

1.3. The two lines are not parallel and not multiples of each other, so they intersect at one point. There is one unique solution.

Q2

2.1. $x = 4$ and $y = -3$.

2.2. $x = -2$ and $y = 13$.

2.3. $x = \frac{6}{13}$ and $y = \frac{69}{13}$.

2.4. $x = \frac{16}{5}$ and $y = \frac{12}{5}$.

2.5. $x = \frac{73}{25}$ and $y = \frac{93}{25}$.

2.6. $x = 1$ and $y = 5$.

2.7. $x = \frac{19}{10}$ and $y = \frac{17}{10}$.

Q3

3.1. $x = 1$ and $y = -2$.

3.2. $x = -3$ and $y = -4$.

3.3. $x = \frac{31}{24}$ and $y = -\frac{1}{12}$.

3.4. $x = 3$ and $y = \frac{2}{3}$.

3.5. $x = \frac{127}{44}$ and $y = \frac{3}{44}$.

3.6. $x = -\frac{18}{49}$ and $y = \frac{39}{49}$.

3.7. $x = \frac{32}{15}$ and $y = -\frac{11}{5}$.

Q4

4.1. $x = \frac{5}{3}$ and $y = -\frac{2}{3}$.

4.2. $x = 4$ and $y = 0$.

4.3. $x = \frac{88}{19}$ and $y = -\frac{1}{19}$.

4.4. $x = \frac{47}{26}$ and $y = \frac{12}{13}$.

4.5. $x = \frac{52}{11}$ and $y = -\frac{1}{11}$.

Version history

v1.0: initial version created 12/24 by Ollie Brooke as part of a University of St Andrews VIP project.