

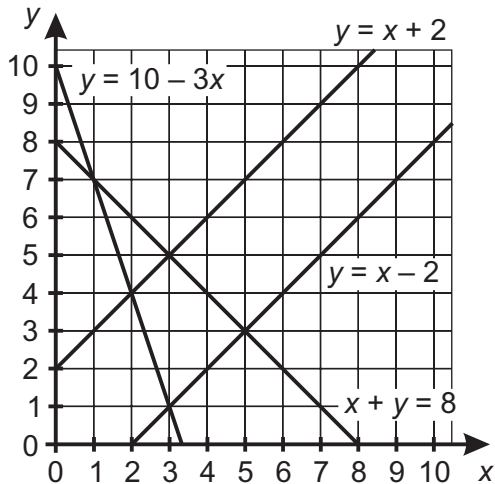
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# Simultaneous equations

1 Use the graph to solve these simultaneous equations:

- a  $y = x + 2$   
 $x + y = 8$
- b  $y = 10 - 3x$   
 $y = x + 2$
- c  $x + y = 8$   
 $y = 10 - 3x$
- d  $y = x - 2$   
 $x + y = 8$
- e  $y = 10 - 3x$   
 $y = x - 2$



2 Look again at the diagram in question 1. If you extended the axes, would you be able to find a solution to the simultaneous equations  $y = x + 2$  and  $y = x - 2$ ? Explain.

3 Solve these simultaneous equations algebraically:

- |                  |                 |
|------------------|-----------------|
| a $2x + 3y = 18$ | b $x + 5y = 25$ |
| $2x + y = 12$    | $4x + 5y = 40$  |
| c $7x - 2y = 34$ | d $x - 2y = 2$  |
| $x + y = 1$      | $4x + 3y = 19$  |
| e $2y = x + 7$   | f $x = 3y + 16$ |
| $x + y = 5$      | $2x + 9y = 2$   |

4 Mr and Mrs Josiah took their two children to a theme park. Their total entrance fee was £78. Miss Taylor took her three nephews to the same theme park. Their total entrance fee was £71. Use simultaneous equations to find the cost of an adult's ticket and a child's ticket. Start by letting £ $x$  be the cost of an adult's ticket and £ $y$  be the cost of a child's ticket.