Who, where and when?

Who?

One of the following four people has committed a crime. The criminal made 2 errors, the victim has made 0 errors and the other two suspects have made 1 error.

Q1. $y = 3x + 3$ (1)

$y = 2x - 7$ (2)

Q2. $x^2 + y = 6$ (1)

$y = x$ (2)

Q3. $x^2 - 2y = 2$ (1)

$y = x + 3$ (2)

Q4. $x^2 + 4y = 7$ (1)

$2y = 2 - x$ (2)

Q5. $y = 3x^2 - 2$ (1)

$y = 3 - 2x$ (2)

Q6. $2y = 4x^2 - 7$ (1)

$y = 6x$ (2)

The ICT teacher said:

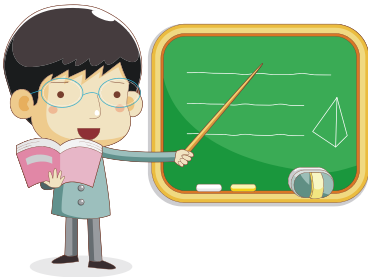
- Q1 are both linear equations
- Q2 has two solutions for y
- Q3 factorises into

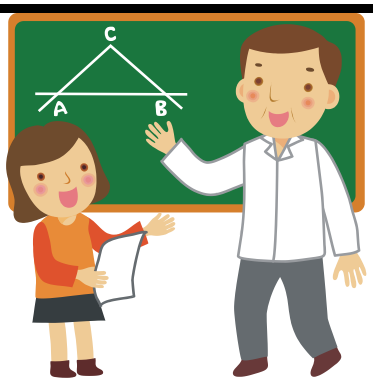
$$(x - 4)(x + 2) = 0$$

- Q1 y = - 27

The history teacher said:

- Q2 has one linear equation & one quadratic
- Q1 has two solutions for x
- Q3 solutions are (4,7) and (-2, 1)
- Q1 x = - 10





The maths teacher said:

- Q4 has one linear equation & one quadratic
- Q1 solution is (-10, -27)
- Q6 factorises into

$$(2x - 7)(2x + 1) = 0$$

- Q4 solutions are (1, 0.5) and (-1, 1.5)

The PE teacher said:

- Q6 has one linear equation
- Q5 factorises into

$$(3x + 5)(x - 1) = 0$$

- Q2 solutions are (3, 3) and (-2,-2)
- Q5 solutions are (1, 1/3) and (1,1)

Where & When?

The murder was committed at one of the locations below, but which one?
It happened where **ALL** the statements are correct.

Q1. $x^2 + y^2 = 16$ (1)

$y = x - 1$ (2)
(answer to 2 dp)

Q2. $y = 3 - x^2$ (1)

$y = 5 - 3x$ (2)

Q3. $x^2 + y^2 = 20$ (1)

$y = x + 4$ (2)
(answer to 2 dp)

Q4. $x^2 + y^2 = 32$ (1)

$y = 1 + 3x$ (2)
(answer to 2 dp)

Q5. $x^2 + y^2 = 100$ (1)

$y = 2x - 3$ (2)
(answer to 2 dp)

Q6. $x^2 + y^2 = 34$ (1)

$y = 1 + 2x$ (2)

Where & When?

The murder was committed at one of the locations below, but which one? It happened where **ALL** the statements are correct.

The maths classroom on Monday	• Only Q2 does not include an equation of a circle • Q1 rearranges into $2x^2 - 2x - 15 = 0$ • One of the solutions to Q6 is (1,3) • The solutions to Q2 are (-1, -2) and (-2, 1)
The dining hall on Wednesday	• Q2 is the only question you don't need to use the quadratic formula • Q3 rearranges into $2x^2 + 8x - 4 = 0$ • Q2 rearranges into $2x^2 + 3x + 2 = 0$ • The solutions to Q2 are (1,2) and (2,-1)
The gym on Thursday	• The solutions to Q1 are (3.28, 2.28) and (-2.28, -3.28) • Q4 rearranges into $10x^2 + 6x - 31 = 0$ • Q2 is the only one that includes a linear equation • The solutions to Q3 are (0.45,4.45) and (-4.45, 0.45)
The playing fields on Friday	• Q5 rearranges into $5x^2 - 12x - 91 = 0$ • The solutions to Q6 are (2.2 , 5.4) and (-3,-5) • Q6 rearranges into $5x^2 + 4x - 33 = 0$ • The solutions to Q5 are (5.63, 8.26) and (-3.23, -9.46)