

Simultaneous equations: special cases

Exit ticket ANSWERS Name _____

- 1 How many solutions do $6x - 3y = 9$ and $y = 2x - 3$ have?

infinitely many (the same line)

- 2 How many solutions do $y = 4x - 1$ and $8x - 2y = 5$ have?

none ($2 = 5$: parallel lines)

- 3 Solve $4x + 3y = 9$ and $2x - 3y = 0$.

$$\underline{x = \frac{3}{2}, y = 1}$$

- 4 Printer A for 5 minutes and printer B for 3 minutes print 181 pages. A for 3 minutes and B for 4 minutes print 146 pages. How many pages a minute does each print?

A 26, B 17 pages a minute

The Maths Habit

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infinitely many (the same line)

TESTS Working ends at $0 = 0$: the same line

LOOK FOR *one: $X = 0$* read $0 = 0$ as $x = 0$
none confused $0 = 0$ with a false line like $2 = 5$

FIX IT

How many solutions do $4x + 2y = 10$ and
 $y = 5 - 2x$ have?

infinitely many (the same line)

- 2 How many solutions do $y = 4x - 1$ and $8x - 2y = 5$ have?

none ($2 = 5$: parallel lines)

TESTS Working ends at a false line: no solution

LOOK FOR *infinitely many* confused $2 = 5$ with $0 = 0$

FIX IT

How many solutions do $y = 3x + 2$ and
 $6x - 2y = 1$ have?

none ($-4 = 1$: parallel lines)

- 3 Solve $4x + 3y = 9$ and $2x - 3y = 0$.

$x = \frac{3}{2}, y = 1$

TESTS Adding, then dividing the right way round

LOOK FOR *$x = \frac{2}{3}, y = \frac{4}{9}$* $6x = 9$ divided the wrong way round

FIX IT

Solve $2x + 3y = 8$ and $2x - 3y = 2$

$x = \frac{5}{2}, y = 1$

- 4 Printer A for 5 minutes and printer B for 3 minutes print 181 pages. A for 3 minutes and B for 4 minutes print 146 pages. How many pages a minute does each print?

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TESTS Forming and solving when both equations need multiplying

LOOK FOR *A 17, B 26 pages a minute* swapped the printers: test it in the story

FIX IT

Machine P for 2 hours and machine Q for 5 hours fill
 310 bottles. P for 3 hours and Q for 2 hours fill
 245 bottles. How many bottles an hour does
 each fill?

P 55, Q 40 bottles an hour