20th January **Higher 5-a-day**

Corbettmaths

Line 1 has equation $x + 6y = 9$

Write down the equation of a line parallel to Line 1.

$6y = -x + 9$

$y = -\frac{1}{6}x + 1.5$

$y = -\frac{1}{6}x + 4$

Line 2 has equation $y = 2x - 1$

Write down the equation of a line perpendicular to Line 2.

$y = -\frac{1}{2}x + 3$

A large bottle of cola is 18cm tall.
A small bottle is 12cm tall.
The bottles are mathematically similar.

David claims the small bottle contains two-thirds the amount of cola than the large bottle.

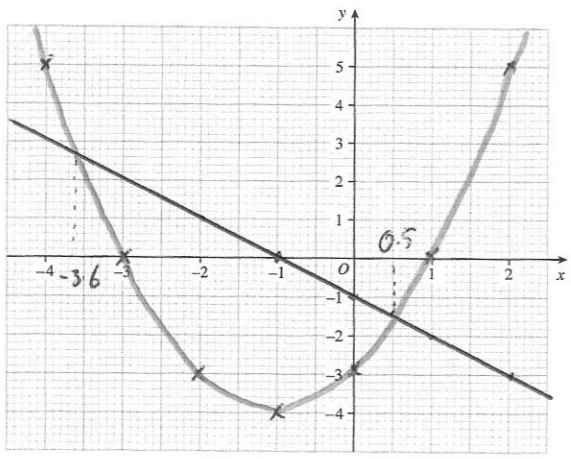
Show he is wrong.

$18 \div 12 = 1.5$

$12 \div 18 = \frac{2}{3}$

$\left(\frac{2}{3}\right)^3 = \frac{8}{27}$

less than 30% of the amount.



$x = 0.5$ or $x = -3.6$

$y = -1.5$ $y = 2.6$

Draw $y = x^2 + 2x - 3$

x	-4	-3	-2	-1	0	1	2
y	5	0	-3	-4	-3	0	5

Solve the simultaneous equations below graphically

$y = x^2 + 2x - 3$

$x + y + 1 = 0$

$y = -x - 1$

Solve using the quadratic formula

$2x^2 + x - 8 = 0$

$a = 2 \quad b = 1 \quad c = -8$

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$x = \frac{-1 \pm \sqrt{1 - 4(2)(-8)}}{4}$

$x = -2.266$ or $x = 1.766$

$x = -2.266$ or $x = 1.766$ to 3dp