

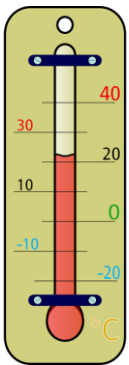


Rearranging



Did you know?

This is a well-known formula that you might recognise.



°C

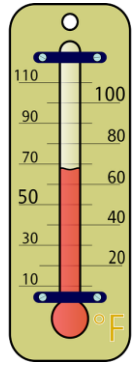
$$F = \frac{9}{5}C + 32$$

It is used to change temperatures in degrees

Celsius °C to degrees Fahrenheit °F



°F



For example: If it is 20 °C to find the temperature in °F
you simply substitute C=20 into the formula above:

What would I need to do if I wanted to convert from Fahrenheit to Celsius??

°C



°F



Rearranging 1



1. Solve $3x + 25 = 60$
2. Rearrange $z = w + 3$ to make w the subject
3. Rearrange $5x - 4 = 2y$ to make x the subject
4. Rearrange $y = \frac{t}{6}$ to make t the subject
5. $y = 6p^2 + 2$ rearrange to make p the subject
6. The area of a circle is found using $A = \pi r^2$. Write the equation you would use to find the radius.
7. In a right angled triangle $\sin x = \frac{\text{Opp}}{\text{Hyp}}$ write down the equation for finding the opposite side.
8. To change temperatures in Celsius to Fahrenheit this formula is used.

$$F = \frac{9}{5}C + 32$$

Rearrange to give the formula for converting Celsius to Fahrenheit



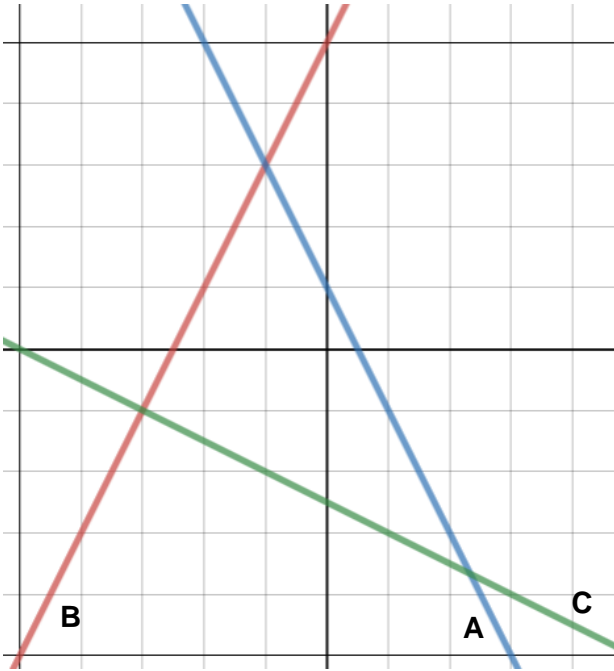
Linear Graphs 2



1. Make x the subject of $x - f = y + b$
2. Make y the subject $ty - x^2 = b$
3. Make c the subject $ac + d = m^2$
4. Make a the subject $x(a - e) = d$
5. Make y the subject $b(y - b) = b^2$
6. To find velocity, v , we use the formula $v^2 = u^2 - 2as$
Rearrange to find s
7. The area of a sector of a circle is given by $A = \frac{\theta \pi r^2}{360}$
Express θ in terms of A , π and r
8. Make x the subject $m(y - x) = t$



Line them up 1



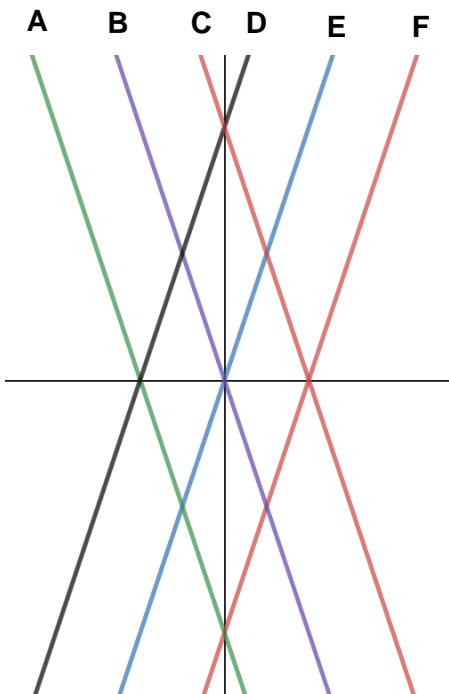
Which is which?

- $y = 2x + 5$
- $2y + x + 5 = 0$
- $y + 2x = 1$

How does rearranging enable you to justify your answer?



Line them up 2



- $y = 4 - 3x$
- $y + 3x + 4 = 0$
- $y + 3x = 0$
- $y = 3x$
- $y = 3x + 4$
- $y - 3x + 4 = 0$



Pairing up

Can you sort the cards into pairs under the following headings:

1. These lines are perpendicular
2. These lines have the same x intercept
3. These lines have the same y intercept
4. These lines are parallel
5. These lines go through the point $(1,5)$
6. These lines ...

$$3y = 2x - 8$$

$$y = -(x + 8)$$

$$y = 4x + 4$$

$$2y + x = 4$$

$$y = 6x - 4$$

$$y = 8x - 3$$

$$y + x + 8 = 0$$

$$2y = 8x + 3$$

$$4y = x + 3$$

$$2y + 8 = 3x$$

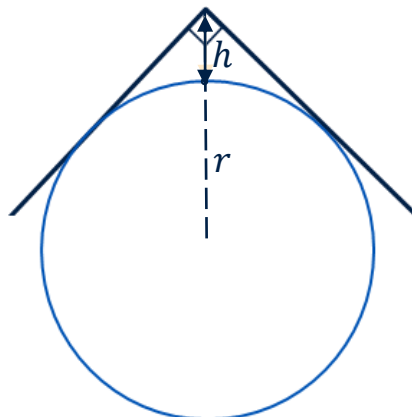
$$y + 6x = 11$$

$$y + 4x + 6 = 0$$



Pipe Problem

Can you find the radius of the pipe shown if the only measurement you can take is the one marked h ?

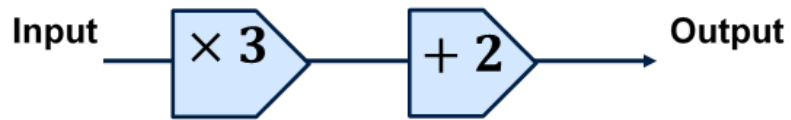




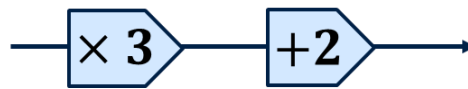
Rearranging and Functions

A function relates an input to an output

Here is an example of a function machine



Complete the following table for the function machine shown



Input	Output
5	
-4	
x	
	17
	x

What do you notice?



Rearranging and Functions Solutions

Let's introduce function notation that you will use in A level maths:

If $f(x) = 3x + 2$ then to find the inverse function we do the reverse

so we subtract 2 then divide by 3

This gives us the inverse function which we call $f^{-1}(x)$

$$\text{In this case } f^{-1}(x) = \frac{x-2}{3}$$

Important! The inverse should give us back the original value

Let's check: $f(5) = 17$ and $f^{-1}(17) = 5$



Rearranging and Functions

Original function

$$f(x) = 3x + 2$$

Inverse function

$$f^{-1}(x) = \frac{x-2}{3}$$

Find the inverse of each of these functions.

1. $f(x) = 3x - 5$

2. $f(x) = 4x + 7$

3. $f(x) = \frac{x}{2} + 1$

4. $f(x) = \frac{x+2}{3}$

5. $f(x) = \frac{2}{3}x + 3$

6. $f(x) = 3 - 2x$

Instead of reversing a function machine - try re-arranging the original function to make x the subject