Re-arranging relations!

An activity designed to help you find all of the true equations about a given situation,

Choose one that can be used to solve the equation and,

Re-arrange the equation to do so!

This investigation will help you learn how to find unknown sides in right-angled triangles.

Trigonometry (comes from Greek "trigonon" meaning triangle and "metria" meaning measurement). Trigonometry is hugely important in surveying. You may have seen surveyors using this funny looking instrument in this picture. What are they doing? They are measuring land. It is rather difficult to measure lengths especially when the ground is difficult, but it is easy to measure angles to a very high degree of accuracy. They make a careful measurement of a distance between two specific places then build up a series of triangles and use trigonometry to measure lengths. The whole process is called triangulation, and is used to measure building sites, national parks, countries and even whole continents!

Re-arrange the following symbols to create 3 correct equations.
You MUST use ALL of the symbols

8 ÷ 2 = 4

4 x 2 = 8

8 = 2 x 4

Re-arrange the following symbols to create 3 correct equations.
You MUST use ALL of the symbols

a ÷ = c

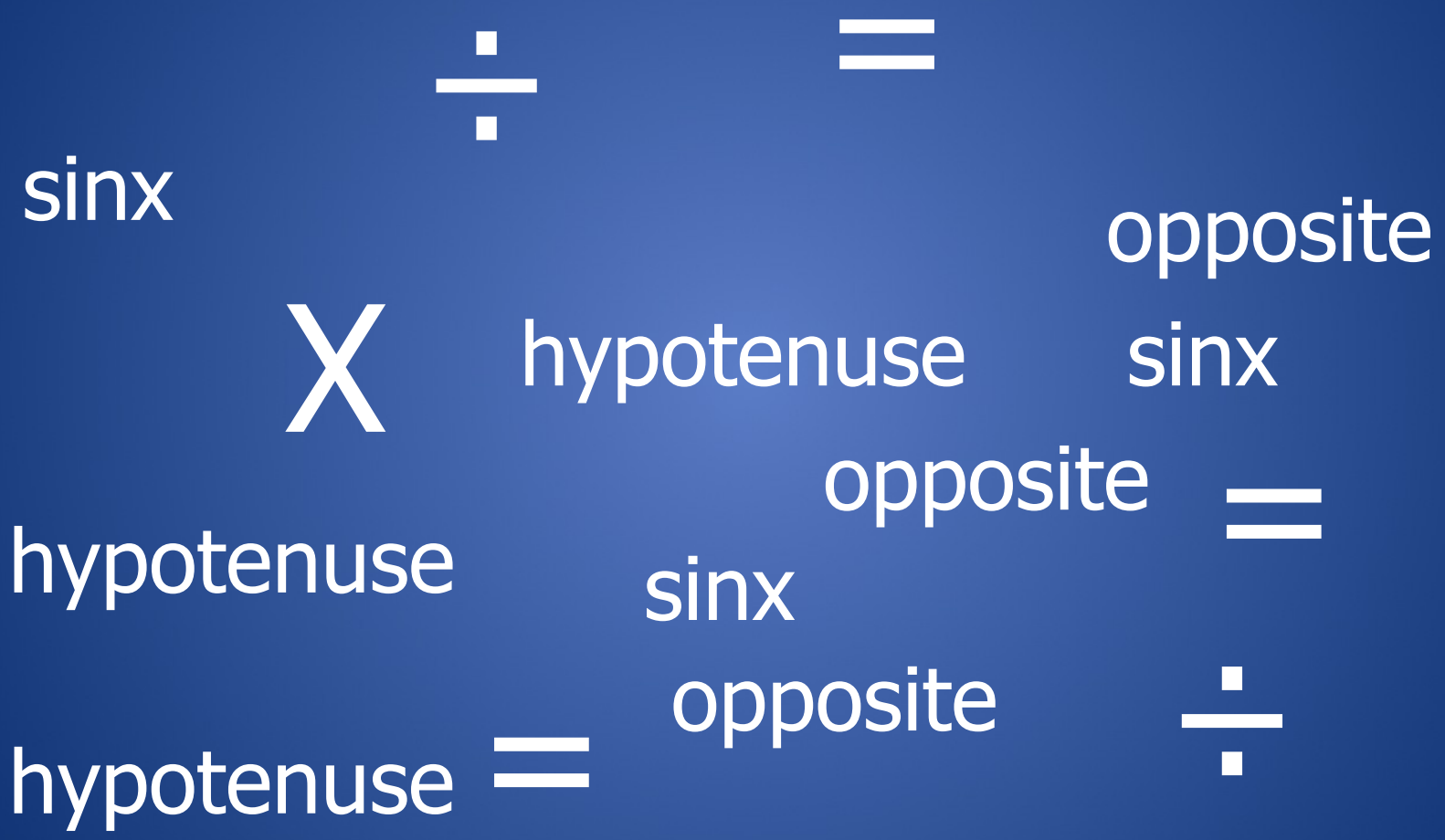
c x c = b

b

a c b a

= ÷ =

Re-arrange the following symbols to create 3 correct equations.
You MUST use ALL of the symbols



Re-arrange the following symbols to create 3 correct equations.
You MUST use ALL of the symbols

÷ =

cosx

adjacent

X hypotenuse cosx

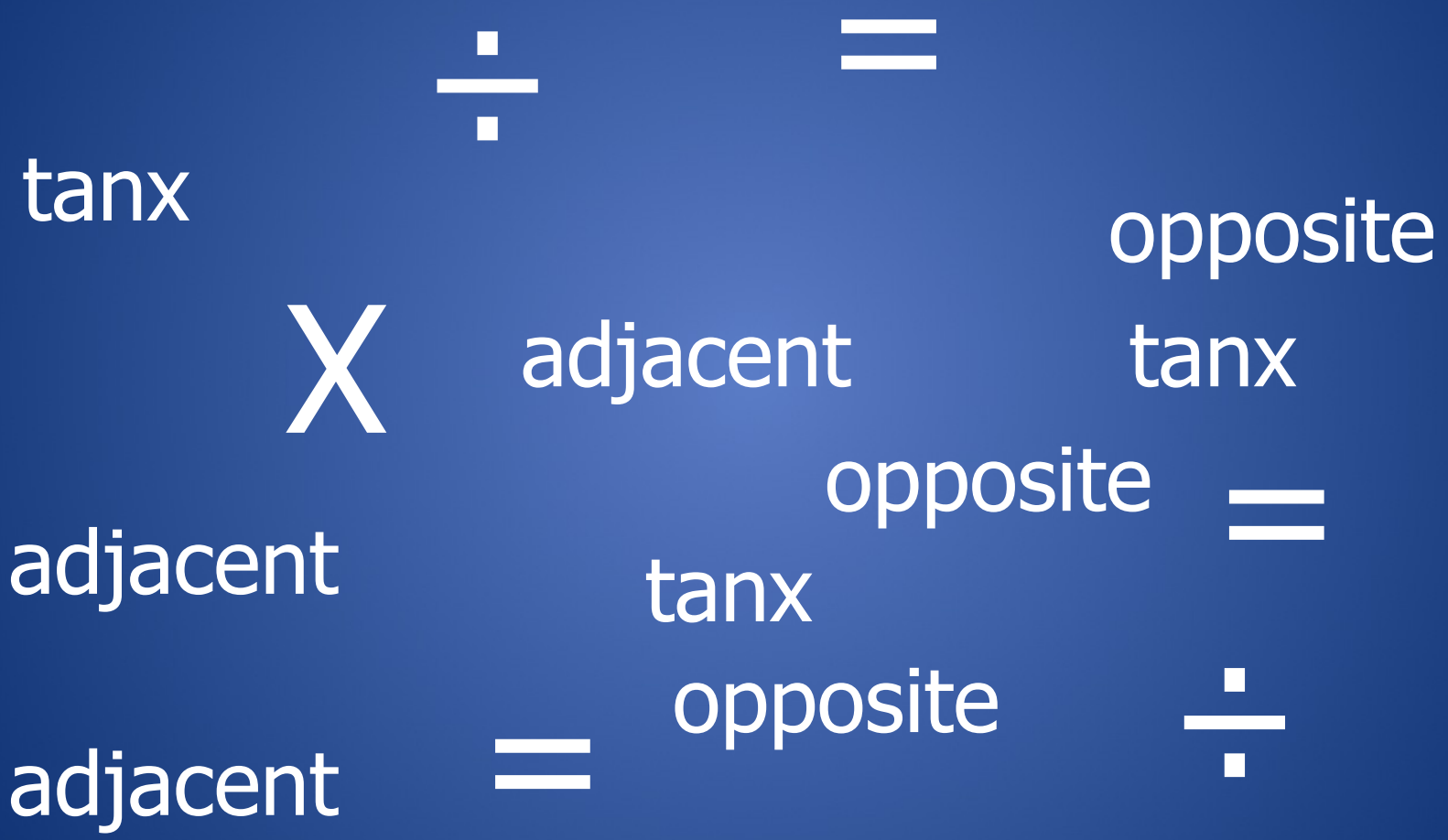
adjacent =

hypotenuse

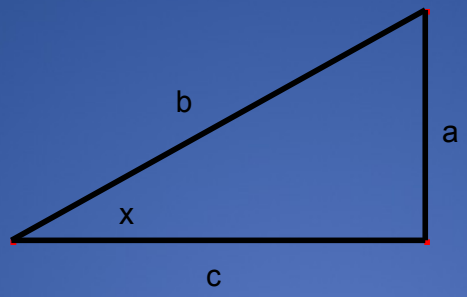
cosx

hypotenuse = adjacent ÷

Re-arrange the following symbols to create 3 correct equations.
You MUST use ALL of the symbols



Based on the diagram below re-arrange the following symbols to create 3 correct equations. You MUST use ALL of the symbols



sinx a c tanx

÷

b

a b cosx =

=

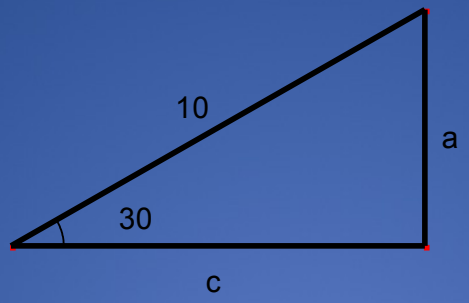
÷

c =

÷

=

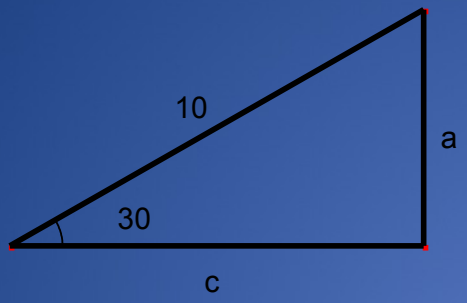
Based on the diagram below re-arrange the following symbols to create 3 correct equations. You MUST use ALL of the symbols



$$\sin 30 \div \frac{a}{c} = \frac{a}{10} \qquad \frac{c}{10} = \cos 30 \qquad \tan 30 = \frac{a}{c} \div \frac{10}{c}$$

Colour the equation in that has 'a' as the only unknown

Based on the diagram below re-arrange the following symbols to create 3 correct equations. You MUST use ALL of the symbols



Sin30 = a ÷ 10

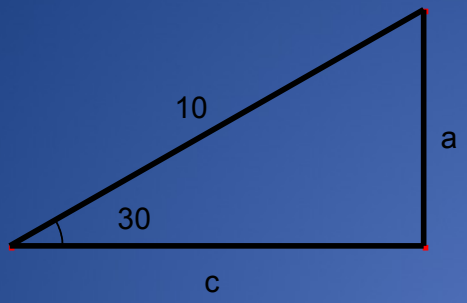
sin30 = a ÷ 10

sin30 = a ÷ 10

sin30 = a ÷ 10

Which of these equations makes it easier to find 'a'?

Now we calculate the value of a



Sin30 = a ÷ 10

$$a = 10 \times \sin 30$$

$$a = 5$$

Make a slide that shows a triangle with an unknown and how you can solve for it.

Submit electronically via Edsby

If interested… Check these out:

Visuals of the relationships

http://www.teachmaths-inthinking.co.uk/files/teachmaths/files/Geometry/discovering%20ratios%20in%20rt%20angled%20triangles/opp%20hyp.html

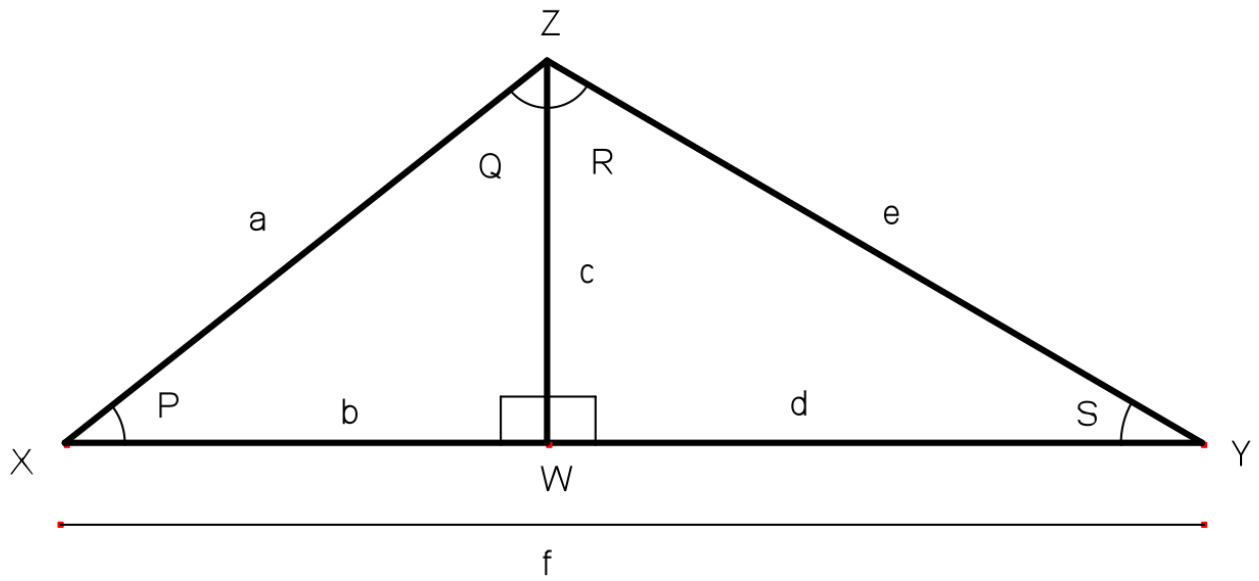
http://www.teachmaths-inthinking.co.uk/files/teachmaths/files/Geometry/discovering%20ratios%20in%20rt%20angled%20triangles/cosine%20and%20tangent.html

If you still have time in class… try this…

Re-arranging SOHCAHTOA

Making Statements

For reference the diagram consists of 3 triangles – XYZ, WYZ and WZX. Angles are denoted by upper case letters and lengths by lower case letters.



The object of this activity is to make as many true statements of equality as you can about this diagram. Your statements should therefore all be equations