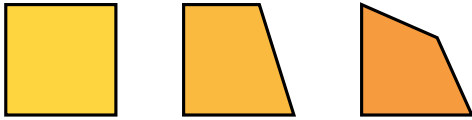
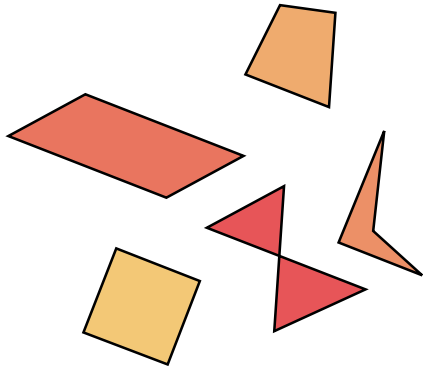


## A Mathematical Test of Words or a Word Test of Mathematics

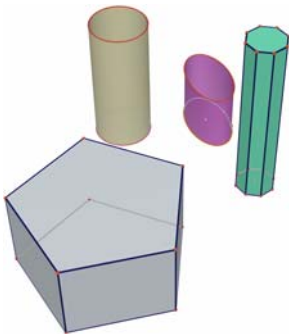
1. Which shape is a trapezium?



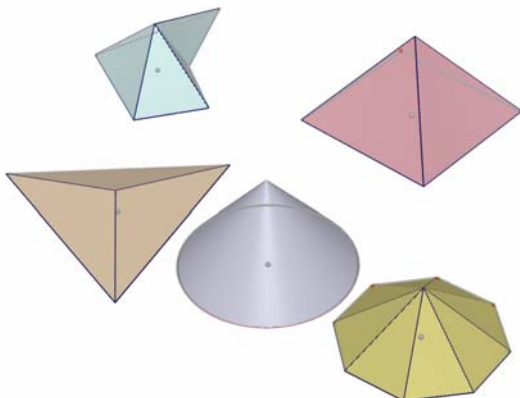
2. How many quadrilaterals are in this picture?



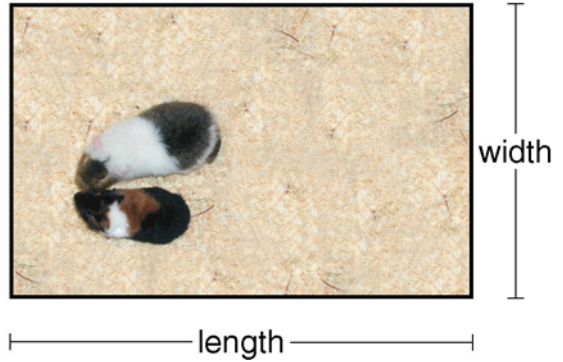
3. How many prisms are shown?



4. How many pyramids are shown?

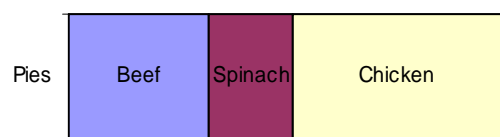
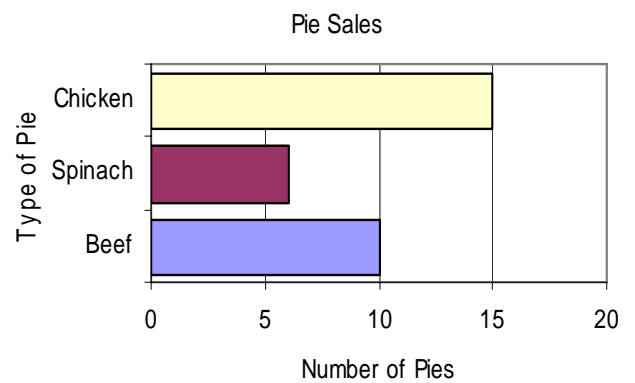
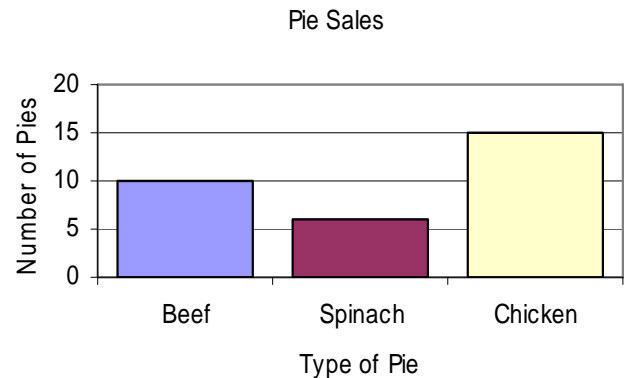


5. Alice wants to build a fence around her rectangular guinea pig pen.



She has 360 cm of fencing.  
What width will give the largest area?

6. Which diagram is a bar graph?



## Answers:

1. First check where you are from. If you are a mathematics teacher in New South Wales the answer is that the first two shapes are correct. If you are an American then only the last shape is a trapezium (the others are trapezoids). If you aren't either than maybe only the middle shape is. Definitions vary from source to source.

Source	2 sides parallel	ONLY 2 sides
Macquarie Dictionary	✓	
MathWorld (trapezoid)	✓	
Oxford Concise Dictionary of Mathematics	✓	
New Zealand Curriculum (Glossary)	✓	
Collins Dictionary of Mathematics		✓ (2 sides of unequal length)
Penguin Dictionary of Mathematics		✓ (other pair being non-parallel)
QCA Maths Glossary (UK)		✓ (exactly one pair...)

2. The answer is either 4 or 5. The “bowtie” shape is classed in some sources as a “crossed quadrilateral”. Other sources explicitly outlaw self intersecting shapes from being polygons. The “crossed quadrilateral” is problematic but it is useful to consider in what ways it is like a quadrilateral.
3. Are you living in Western Australia? If so your curriculum says:  
*“Students understand the difference between a prism and a pyramid (including a cylinder and cone)” (Outcomes and Standards Framework – Mathematics Page 87).*  
  
If you are not then only the shapes with polygons as cross-sections are prisms
4. See Question 3

5. Is this question misleading because it says the pen is “rectangular”? The shape of the pen that will give the largest area is a square. Why is it that many students find the idea of squares being a type of rectangle counter-intuitive?

Would the word “oblong” help?

6. The last example is commonly referred to as a bar graph in NSW (more properly a divided bar graph).

The first example is also often referred to as a bar graph in other sources.

Microsoft Excel calls the first example a column graph and the middle example a “bar graph”.

## Selected resources for mathematics definitions

MathWorld

<http://mathworld.wolfram.com/>

Extensive definitions on mathematics terms at a high level. Note that this is American and that primarily American usage and spelling dominate (although it gives both the US and UK definitions of “Trapezium” it doesn’t give the UK definition of “Trapezoid”).

Victorian Essential Learning Standards Glossary

<http://vels.vcaa.vic.edu.au/essential/discipline/mathematics/glossary.html>

This is on the website for the Victorian equivalent of NSW Board of Studies and accompanies Victoria’s new curriculum document for Mathematics. Logic and set theory terms get a lot of coverage but some more common terms (eg quadrilateral) aren’t given.

Cut the Knot

<http://www.cut-the-knot.org/glossary/atop.shtml>

The site itself is a miscellany of things mathematical. The glossary is large but erratic, so don’t expect to necessarily find the meaning of the word you are looking for.

The New Zealand Mathematics Curriculum

[http://www.minedu.govt.nz/web/downloadable/d13526\\_v1/math-nzc.pdf](http://www.minedu.govt.nz/web/downloadable/d13526_v1/math-nzc.pdf)

The good news is that this curriculum document comes with an extensive glossary of most of the key terms in school maths. The bad news is that the glossary is at the end of a largish PDF file containing the whole of the NZ mathematics curriculum from kindy till Year 13.

Mathematics glossary for teachers in Key Stages 1 to 4

<http://www.qca.org.uk/3420.html>

This glossary was developed by the Britain’s Qualifications and Curriculum Authority (QCA). It is fairly extensive but also contains definitions of various pre-decimal Imperial units (feet, inches etc).

