

**Year 7 Mathematics 2016**

**Common Test 3: 2D and 3D Geometry Time allowed: 60 mins**

**Total marks: 60** **Name**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Show your working for any question worth more than one mark.

1. Give **two** reasons why the 2D shape shown is not a polygon. [2]

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (a) What is the name of the shape on the right? [4]

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(b) How many angles does it have?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(c) How many diagonals does it have?

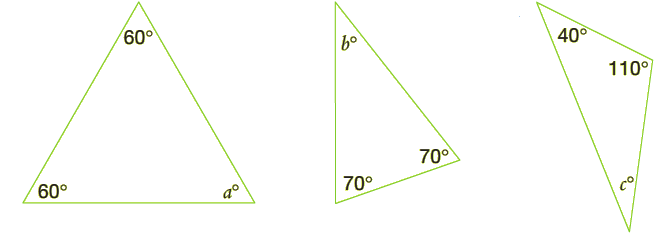
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(d) Can the shape be described as regular? *Circle your answer.*  YES / NO

1. Fill in the missing parts of the table below. *The table is not in any order*. [5]

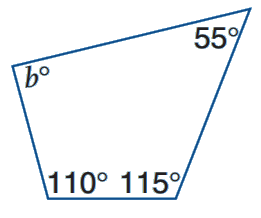
|  |  |
| --- | --- |
| Number of sides | Name of polygon |
| 8 sides |  |
|  | Quadrilateral |
| 7 sides |  |
|  | Nonagon |
| 5 sides |  |

1. Give the correct **name** of the following triangles **and** give the value of the **pronumeral**. [6]

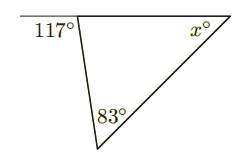
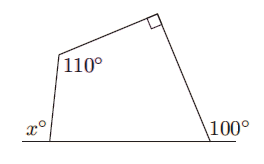


1. Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (b) Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (c) Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Value of *a*: \_\_\_\_\_ Value of *b*: \_\_\_\_\_ Value of *c*: \_\_\_\_\_\_

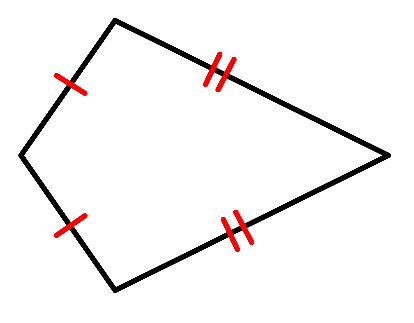
1. Calculate the value of *b* in the following quadrilateral. [2]

*b* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Calculate the value of *x* in each of the following. You must show your working, giving reasons where appropriate.
2. 
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ [2]
4. 

(b) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ [2]

1. Name the following quadrilaterals and complete the sentences below them. [4]

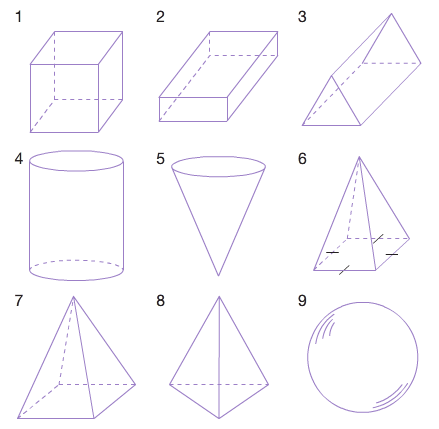
[](https://www.google.co.nz/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwi0wqalx5rNAhXBhaYKHXVnANUQjRwIBw&url=https://commons.wikimedia.org/wiki/File:Kite_definition.svg&bvm=bv.124088155,d.dGY&psig=AFQjCNHJe3J-dfygKMGal6YK5rY9vVQdCw&ust=1465548373773788)

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

This shape has one pair of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sides in this shape are

sides equal.

1. For the following questions refer to the numbered shapes shown in the box below. [7]



1. Name solid 3:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Name solid 4:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. State the number of edges for solid 4:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. State the number of vertices for solid 1:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. State the number of faces for solid 6:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Give the number of the solid which has

5 faces, 6 vertices and 9 edges.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

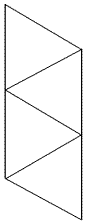
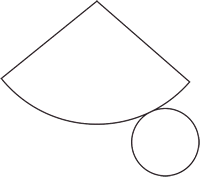
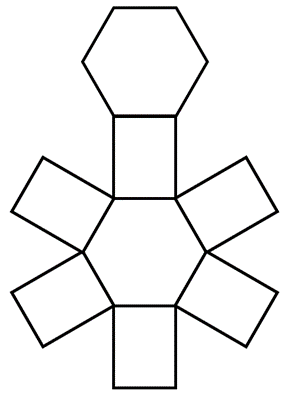
1. Give the number of the solid which has 1 face, 0 vertices and 0 edges.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

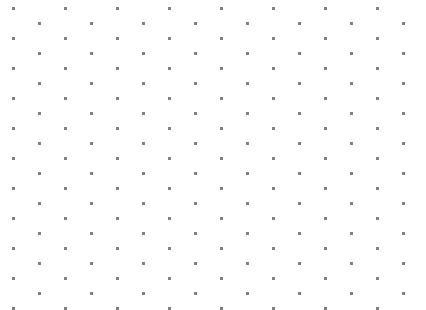
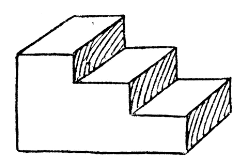
1. Use a ruler and a pencil to accurately draw the net of a square-based pyramid on the grid provided. [2]

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1. Give the name of the solid for each of the nets drawn below. [3]

[](http://www.google.co.nz/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwiW4fLFy5rNAhXj2qYKHSSZAh0QjRwIBw&url=http://www.regentsprep.org/regents/math/geometry/gg2/netpage.htm&psig=AFQjCNHLgQ_AZ89H-4MWuOZA2SW-yDLT-g&ust=1465549496366569)[](http://www.google.co.nz/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwjZrdrby5rNAhVD6aYKHa4SCx8QjRwIBw&url=http://www.emathematics.net/shapes3d.php?def%3Dnet&psig=AFQjCNGevLkaWxhemF96--6mTnvQVKvuAQ&ust=1465549560729539)[](http://www.google.co.nz/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwj465X_y5rNAhXjMqYKHWOjC7AQjRwIBw&url=http://www.math-salamanders.com/geometry-nets.html&psig=AFQjCNElygDe-aehEBwHJKJ-_dYz192MrA&ust=1465549630049136)

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (b) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (c) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Use a ruler and a pencil to accurately draw an oblique projection of a cuboid. [3]
3. Use a ruler and a pencil to accurately copy the shape shown from an oblique projection to an isometric projection using the isometric paper below. [3]



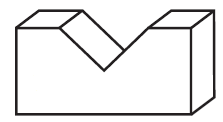
1. Give the front, right and top views of the following solids. [6]
2. 

Front

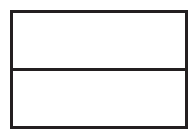
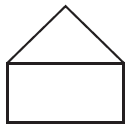
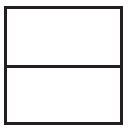
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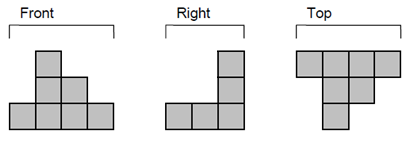


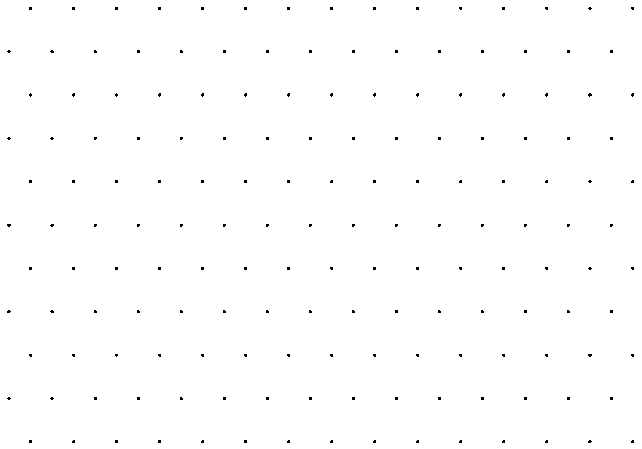
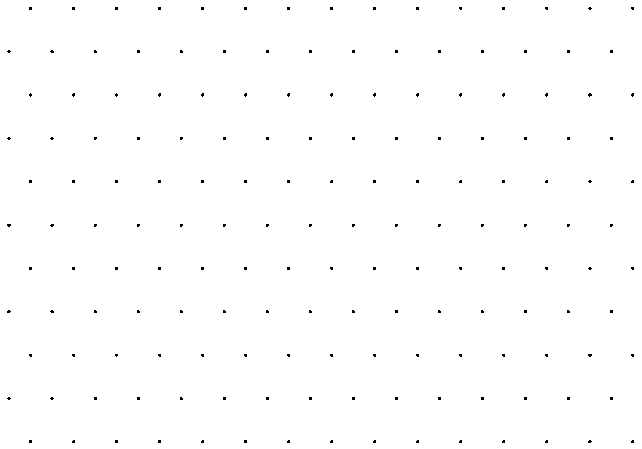
1. **Sketch** the 3D object depicted by the top, front and side views given in the box below. [3]



Top Front Side

1. Draw the isometric projection of the object depicted by the views given. [3]





1. Mr Fong asks his 5 children to weed his square garden. In his garden there is a little square pool (as shown in the diagram). He divides the garden into 5 areas of the same size for each child to work on. Show on the diagram how he divides them up evenly. [3]

|  |  |  |  |
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|  |  |  |  |
|  |  |  |  |
|  |  | Pool |  |
|  |  |  |  |

The End

*The extra paper below is for any questions you may need to re-do.*

