

**Year 7 Mathematics 2015**  
**2D and 3D Space**

Total marks: 70

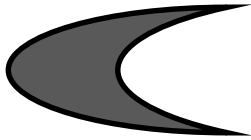
Name Mark scheme

*All drawings must be completed using a pencil and a ruler where appropriate.  
You may lose marks for untidy work.*

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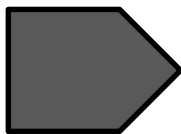
1. Why are the following figures below not triangles? Give **one** reason for each of them.

a.



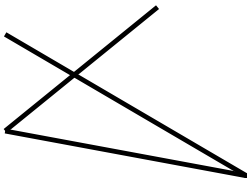
Answer: It's curved/ not made up of straight lines [1]

b.



Answer: It has five sides [1]

c.



Answer: It's not closed/has an overlap [1]

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2. Complete the table below.

Number of sides	Name of polygon
5 sides	Pentagon
6 sides	Hexagon
7 sides	Heptagon
8 sides	Octagon
9 sides	Nonagon
10 sides	Decagon

[6]

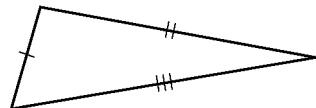
3. Name the following triangles.

a.



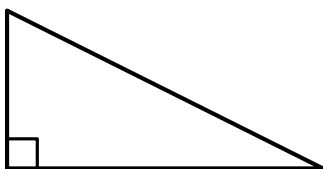
\_\_\_Isosceles\_\_\_ [1]

b.



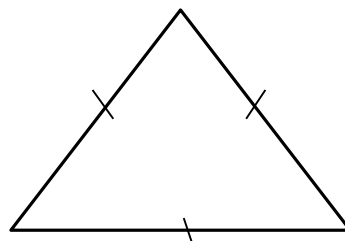
\_\_\_Scalene\_\_\_ [1]

c.



\_\_\_Right-angled\_\_\_ [1]

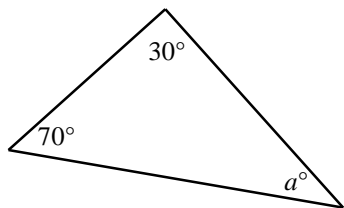
d.



\_\_\_Equilateral\_\_\_ [1]

4. Find the value of each pronumeral. Give a reason for each answer (the reason cannot be a calculation).

a.

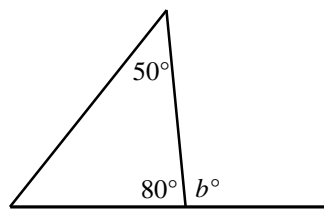


Angle: 80° ✓

Reason: ∠ sum of a Δ is 180° ✓

[2]

b.

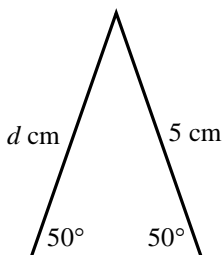


Angle: 100° ✓

Reason: ∠'s on a line sum to 180° ✓

[2]

c.

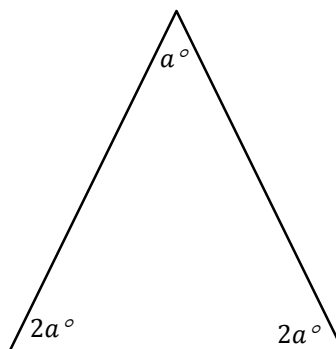


Side length: 5 ✓

Reason: Base angles of an isosceles triangle are equal ✓

[2]

d.



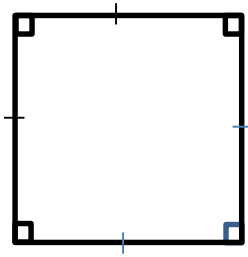
Angle: 36° ✓

Reason: ∠ sum of a Δ is 180° ✓

[2]

5. Name the following quadrilaterals.

a.



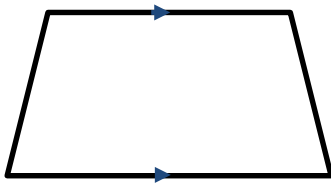
Square ✓ [1]

b.



Rectangle ✓ [1]

c.



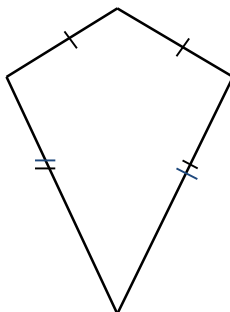
Trapezium ✓ [1]

d.



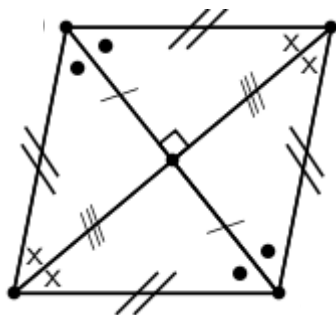
Parallelogram ✓ [1]

e.



Kite ✓ [1]

6. Draw below a fully labelled diagram of a rhombus. Your finished diagram will show all the properties of a **rhombus**. Use a pencil and a ruler.



Correct shape drawn ✓

One mark for each for any of the following labelled correctly:

4 equal sides ✓

Diagonals bisect each other ✓

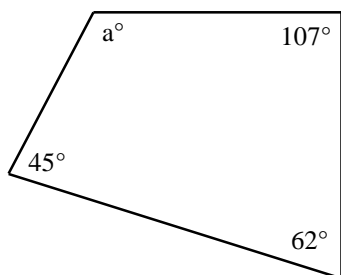
Diagonals bisect the angles at the vertices ✓

Diagonals perpendicular ✓

[4]

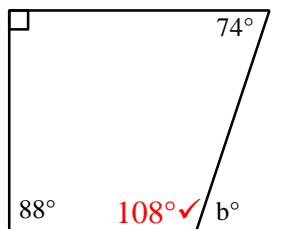
7. Find the value of each pronumeral.

a.



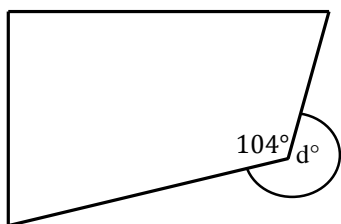
146° ✓ [1]

c.

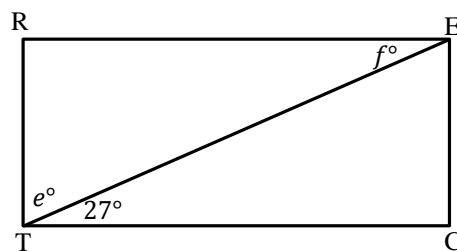


72° ✓ [2]

RECT below is a rectangle

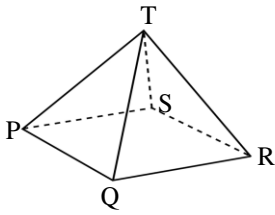


256° ✓ [1]



$e =$ 63° ✓,  $f =$ 27° ✓ [2]

8. For the **square** based pyramid below:



a. List **all** of the vertices

Answer (a): P, Q, R, S, T ✓✓ all correct [2]  
 ✓ two correct

b. write down the number of edges

Answer (b): 8 ✓✓ [2]

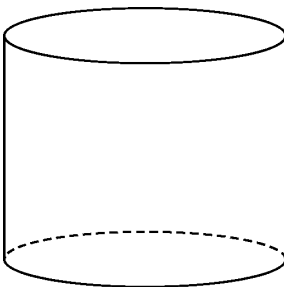
c. write down the names of its faces

Answer (c): Square and triangle ✓✓ [2]

9.

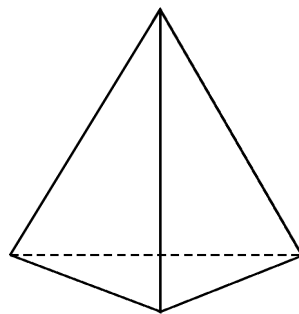
i. Name the following solids.

a.



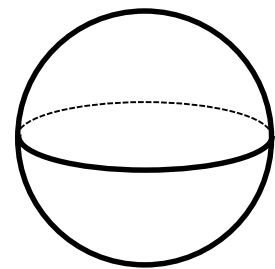
Cylinder [1]

b.



Triangular based pyramid [1]

c.

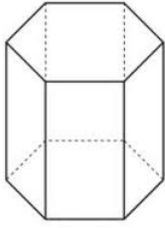


Sphere [1]

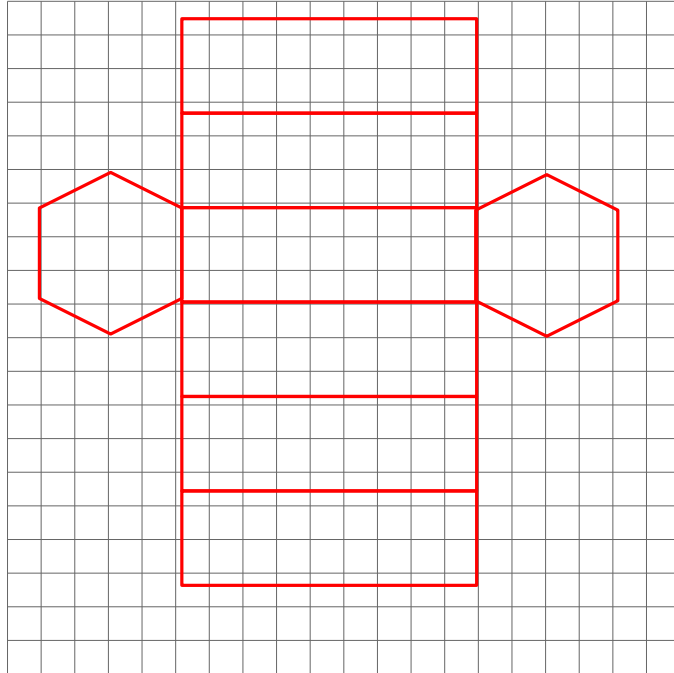
ii. Which of the above solids has a uniform cross-section?

Cylinder [1]

10. Draw the net of the following solid on the grid provided (you do not need to include tabs in your diagram).

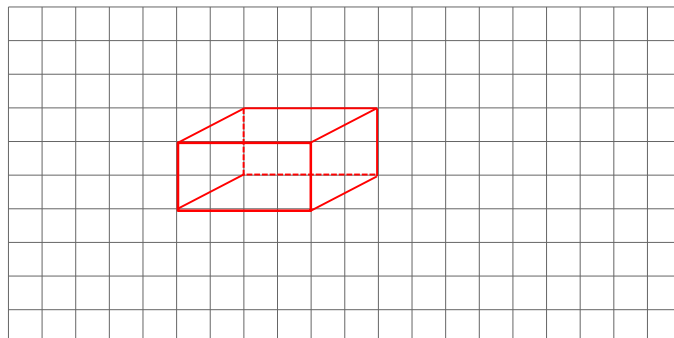


- ✓✓✓ all correct
- ✓✓ mostly correct
- ✓ good attempt



[3]

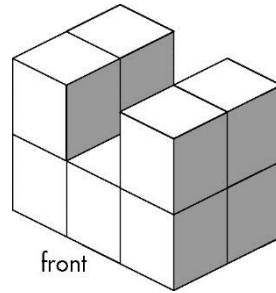
11. On the grid below draw a 3D drawing of a cuboid 4 units long and 2 units high.



- ✓✓✓ all correct
- ✓✓ mostly correct
- ✓ good attempt

[3]

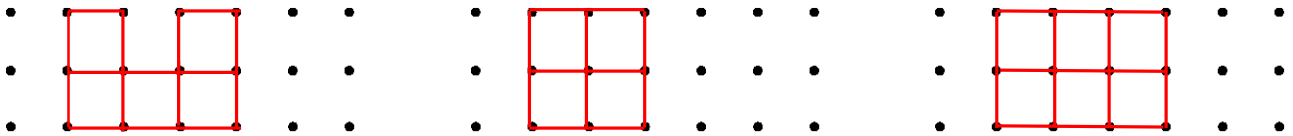
12. Draw the front, side and top views of the following shape on the square dot grid below.



Front

Side

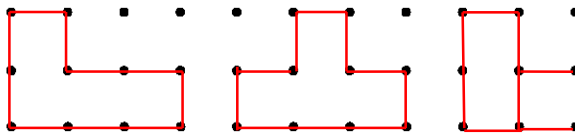
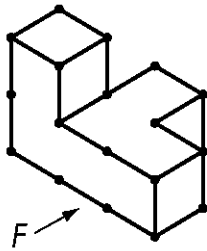
Top



[3]

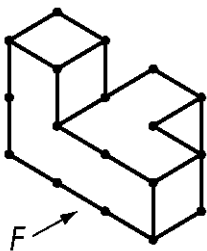
13.

- a. On the square dot grid below, draw the front view, top view (or plan) and the right-side view of the solid shown in isometric view below. *F* points to the front of the solid.

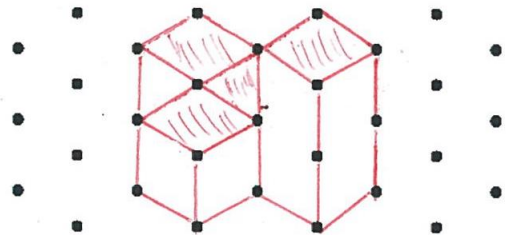


[3]

- b. On the triangle dot grid below, draw the isometric view of the solid below as it appears **looking from directly behind** it.



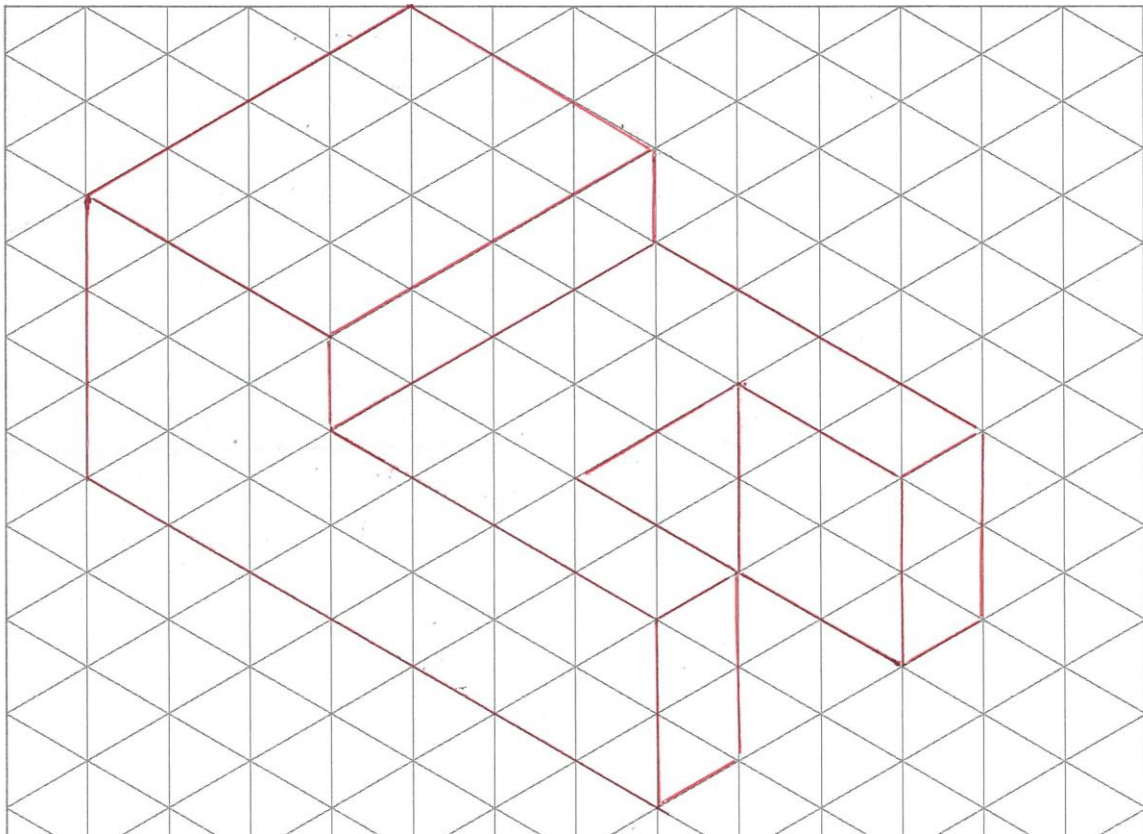
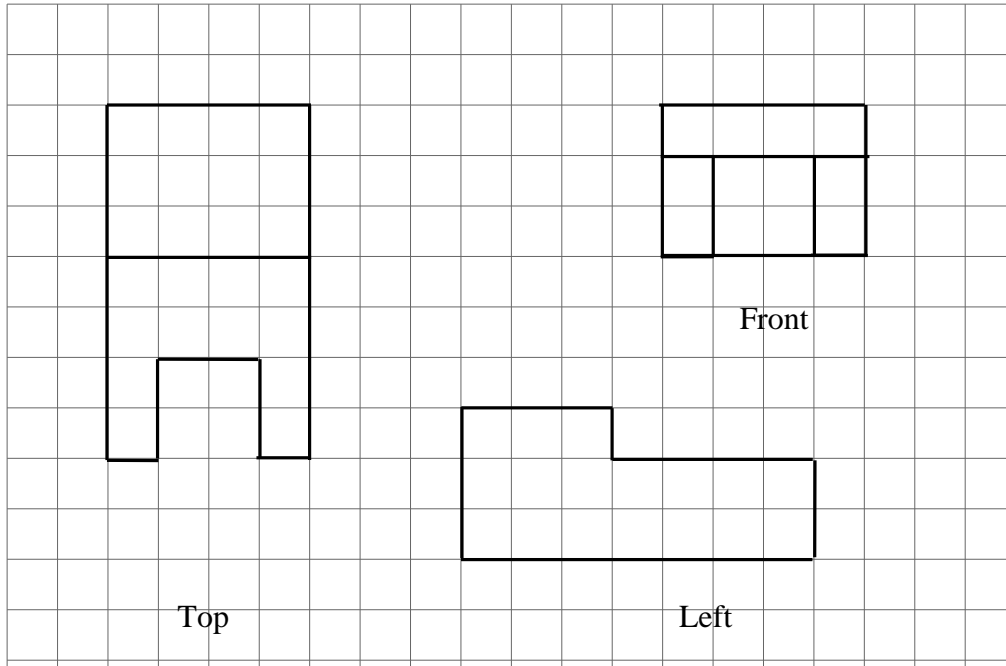
✓✓✓ all correct  
 ✓✓ mostly correct  
 ✓ good attempt



[3]



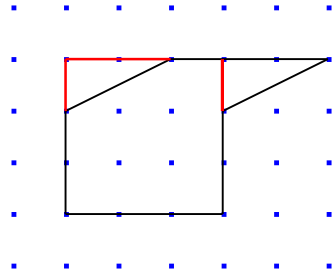
14. Use the views given to draw a three-dimensional isometric drawing of the solid below.



- ✓✓✓ all correct
- ✓✓ mostly correct
- ✓ good attempt

[3]

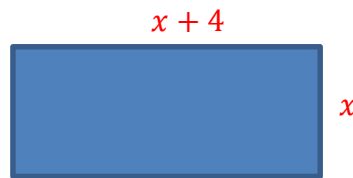
15. The following shape can be transformed into a square by making **one** straight cut and then moving the piece to a new position. Show how this can be done.



[2]

16. A rectangle has length 4 cm longer than its width. Its perimeter is 78 cm. Find the width of the rectangle.

*Note: perimeter is the distance round the outside of a shape.*

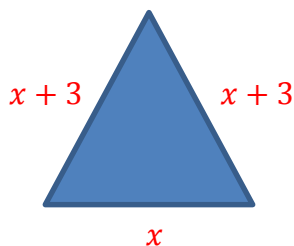


✓ working

$$2x + 16 = 78$$

Width: 17.5 ✓ [2]

17. The equal sides of an isosceles triangle are 3 cm longer than the third side. If the perimeter is 18.9 cm find the length of the third side.



$$3x + 6 = 18.9$$

✓ working

Length of third side: 4.3 ✓ [2]

**THE END**