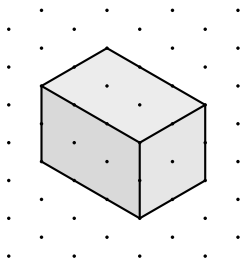
Foundation GCSE: Isometric Drawings

Name: _____ Class: _____

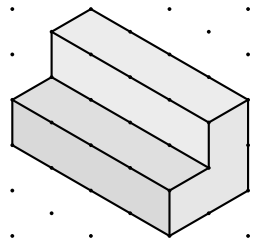
Instructions: Answer all questions. Working out should be shown where appropriate.

1. Calculate the total volume of the cuboid shown on the isometric grid below, given that the distance between adjacent dots on the grid represents 1 cm.



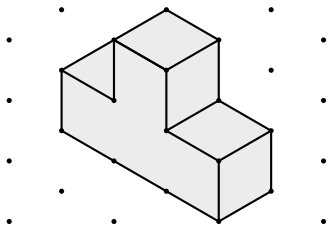
2. On the isometric dot grid below, draw a cuboid of dimensions 2 units wide, 2 units deep, and 3 units high.

3. Calculate the total volume of the step structure shown on the isometric grid below given that the distance between adjacent dots on the grid represents 1 m.



4. On the isometric dot grid provided, draw a right square pyramid (the apex sits directly above the center of the base) with the following dimensions base length 3 and height 4 units.

5. (i) Calculate the total volume of the compound shape shown on the isometric grid below, given that the distance between adjacent dots on the grid represents 1 cm.

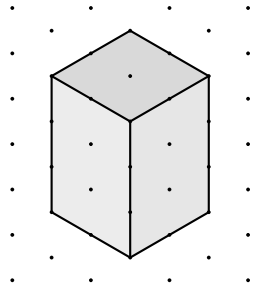


(ii) Draw the plan view, front elevation and side elevation of the above compound shape on the grid below:

Answers & Worked Solutions

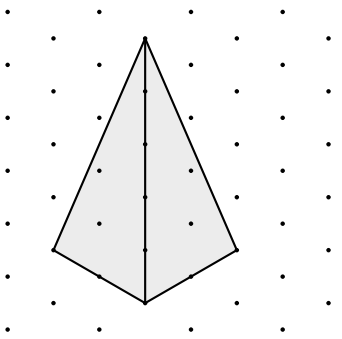
1. 12 cm^3 : Volume $= 3 \times 2 \times 2 = 12$.

2. Isometric drawing of the 2 by 2 by 3 cuboid:



3. 3 m^3 : Can divide into two cuboids: $1 \times 2 \times 1 + 1 \times 1 \times 1 = 3$.

4. Isometric drawing of right square pyramid with base 2 and height 4:



5. (i) 4 cm^3 : Bottom cuboid $= 3 \times 1 \times 1 = 3$; Top unit cube $= 1 \times 1 \times 1 = 1$; Total $= 3 + 1 = 4$.

   (ii)