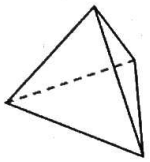
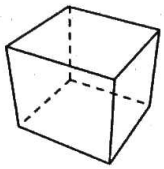
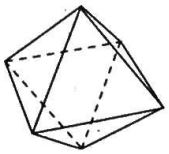
five such solids:



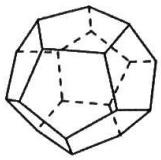
Tetrahedron



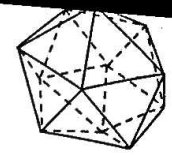
Cube



Octahedron



Dodecahedron



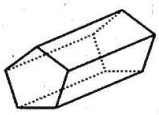
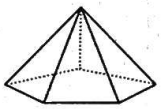
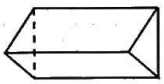
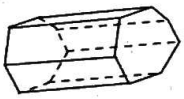
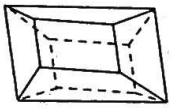
Icosahedron

**TEACHER: Give your students the nets for the Platonic solids from the Teacher's Guide.**

4. Use the nets to construct the five platonic solids. Complete the table:

| Polyhedron | Shape of the faces | Number of faces (F) | Number of vertices (V) | F + V | Number of edges (E) |
|---|---|---|---|---|---|
| Tetrahedron | | | | | |
| Cube | | | | | |
| Octahedron | | | | | |
| Dodecahedron | | | | | |
| Icosahedron | | | | | |

5. Fill in the table based on the pictures given:

| Polyhedron | Number of faces (F) | Number of vertices (V) | F + V | Number of edges (E) |
|---|---|---|---|---|
|  | | | | |
|  | | | | |
|  | | | | |
|  | | | | |
|  | | | | |

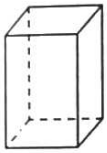
6. Compare the sum of the number of faces and vertices to the number of edges in Questions 4 and 5. Use an equation to express what you found.

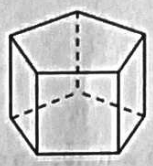
Shade the base of each shape above and then fill in the chart below:

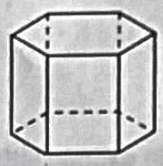
| | A | B | C |
|---|---|---|---|
| Number of sides on base | | | |
| Number of triangular faces | | | |

What relationship do you see between the number of sides in the base and the number of triangular faces on the pyramid?

3.

A: 

B: 

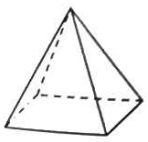
C: 

Shade the bases of each shape and then complete the chart below:

| | A | B | C |
|---|---|---|---|
| Number of sides on base | | | |
| Number of (non-base) rectangular faces | | | |

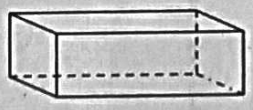
What relationship do you see between the number of sides in the base and the number of (non-base) rectangular faces on the prism?

4. How many of each type of face would you need to make the desired 3-D shape?

a) 

 = _____

 = _____

b) 

 = _____

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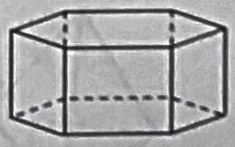
c) 

 = _____

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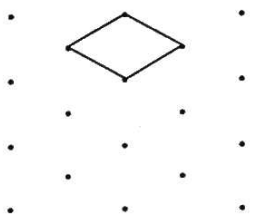
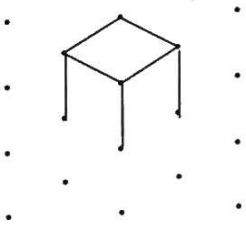
# G8-50: 3-D Sketches

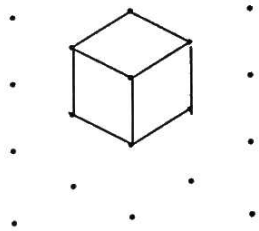
Steps to drawing a **cube** on isometric dots:



**Step 1**
Draw a square with 4 vertices at 4 different dots.



**Step 2**
Draw vertical lines at 3 vertices to touch the dots below.

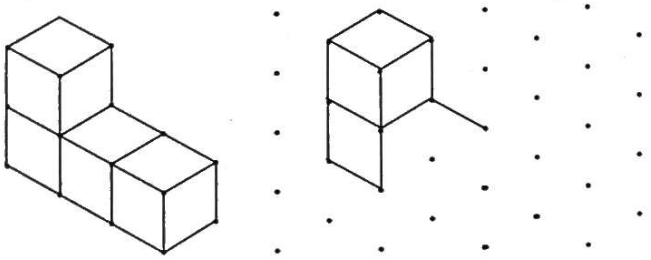


**Step 3**
Join the vertices.

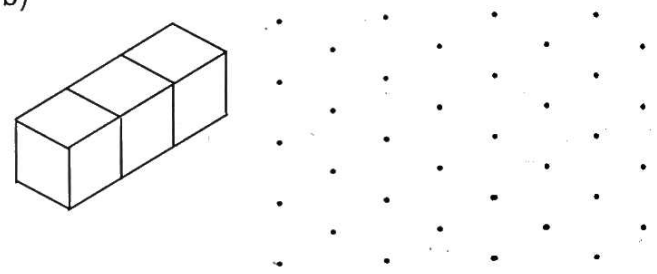
---

1. Draw the following figures constructed with the interlocking cubes on isometric dot paper. The first one has been started for you:

a)



b)



**TEACHER:**
**Review top views of figures in section ME8-32. Your students will need a copy of the isometric dot paper from the Teacher's Guide.**

2. Build a figure out of interlocking cubes having the following top views. Then copy the figures onto isometric dot paper:

a)

| | | |
|---|---|---|
| 2 | 2 | 1 |

b)

| | | |
|---|---|---|
| 3 | 2 | 1 |

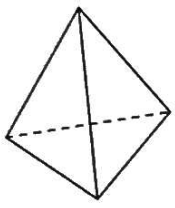
c)

| | |
|---|---|
| 2 | 1 |
| 2 | 1 |

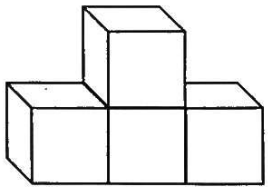
d)

| | | |
|---|---|---|
| 3 | 1 | 1 |
| 2 | 1 | |

3. Draw a net for the triangular prism on isometric dot paper:



4. Draw a copy of the figure on isometric dot paper:



5. Create your own figure out of interlocking cubes and sketch it on isometric dot paper.