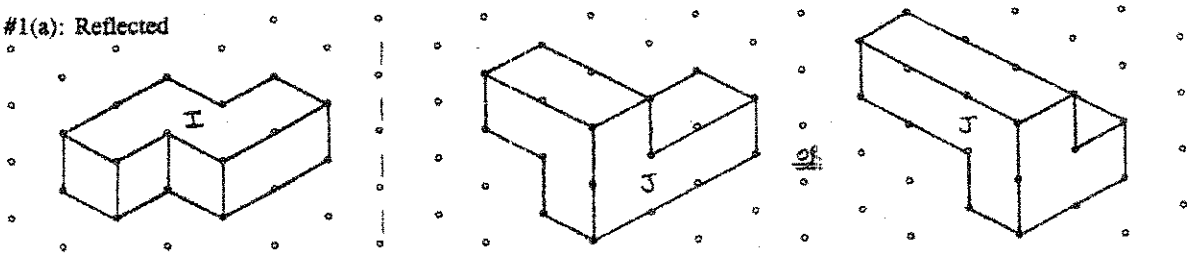
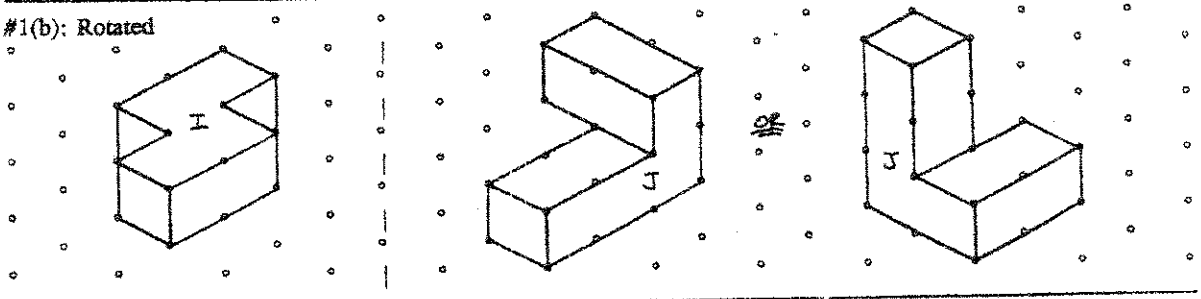
Selected Homework Solutions from Section 18.4

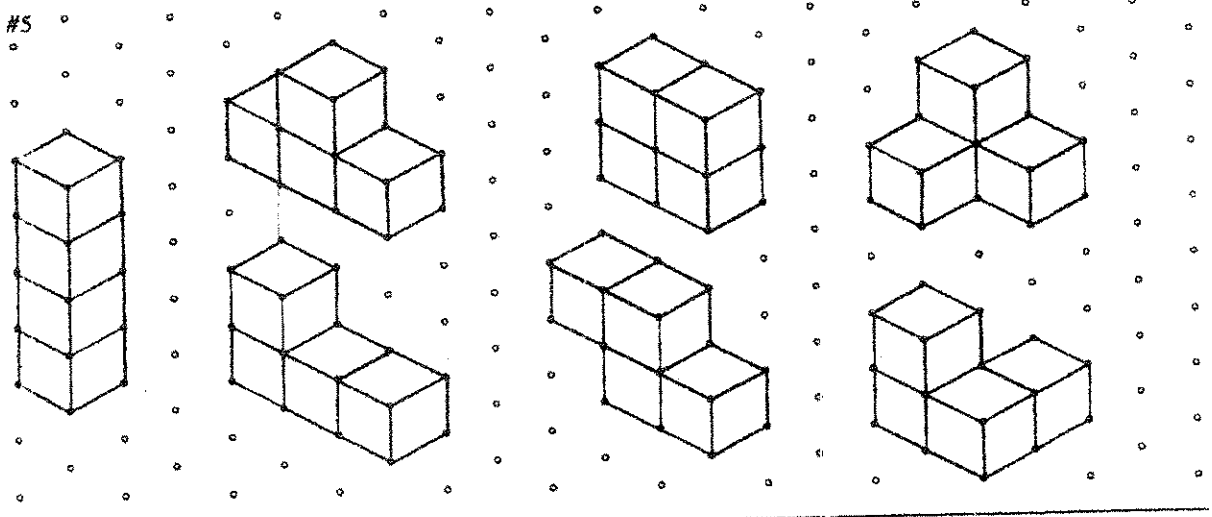
#1(a): Reflected



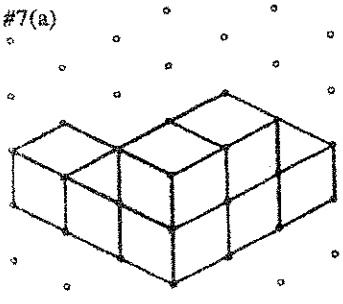
#1(b): Rotated



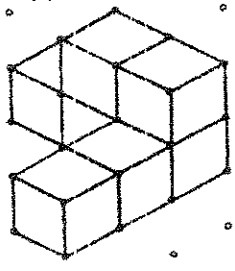
#5



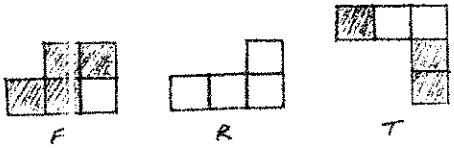
#7(a)



#7(b)



#7(c)



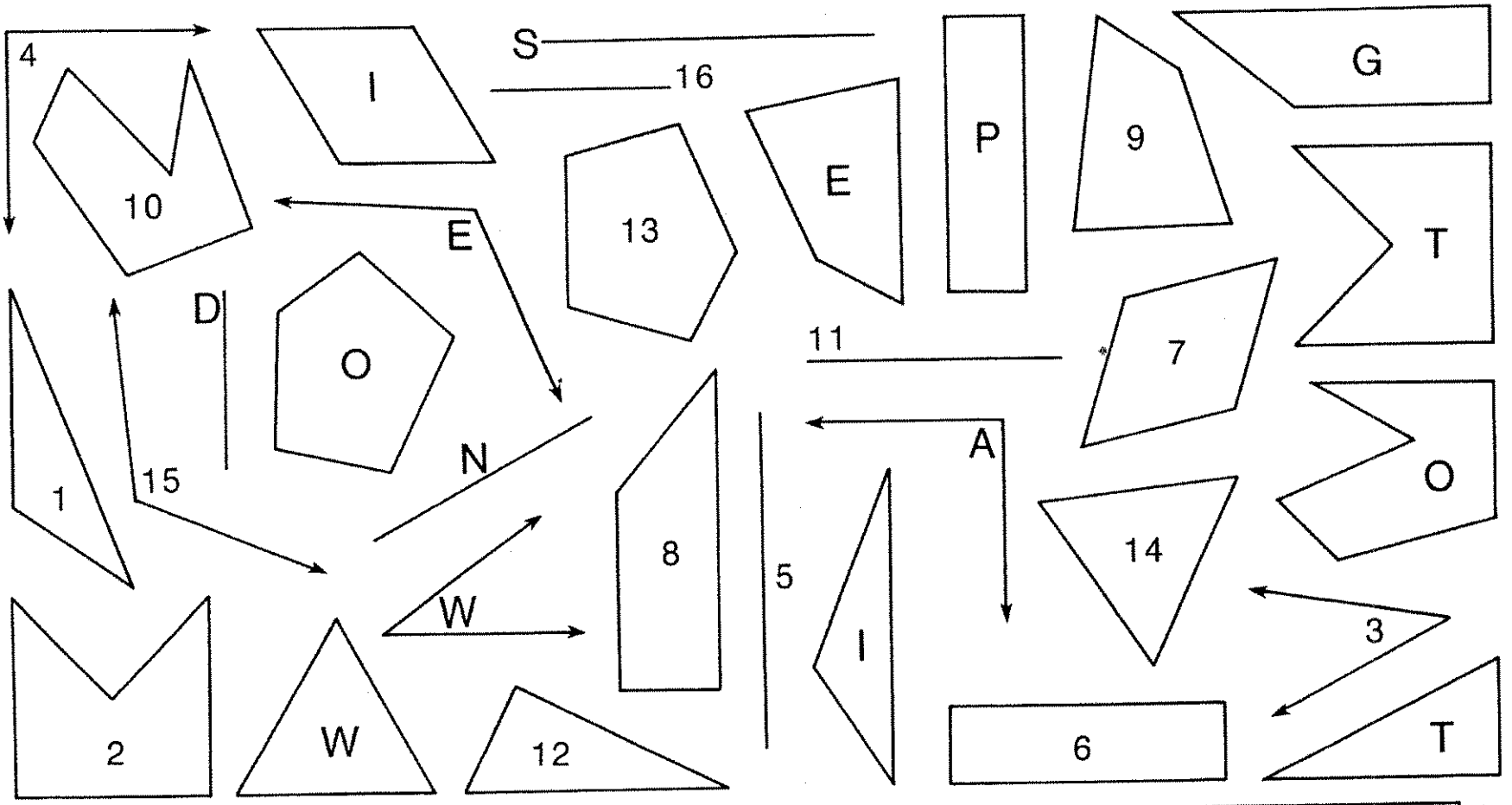
#7(d) - 90° Rotation

How Did The Baby Pigeon Manage To Fly South In The Winter?

TO ANSWER THE TITLE QUESTION:

Find a pair of CONGRUENT FIGURES below. One of them will have a number and the other will have a letter. The number tells you where to put the letter in the boxes at the bottom of the page.

KEEP WORKING AND YOU WILL DISCOVER THE PUNNY ANSWER.



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

18.4 Congruent Polyhedra

2. No—none can be moved to match another exactly.
3. The hidden shape will have the same sized faces and so the same areas as the given shape, so 108 cm^2
4. a. Yes. A rotation of 360° will make it match itself.

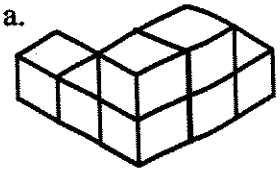
   b. Yes. Just reverse the motions that showed that P was congruent to Q.

   c. Yes. Do all the motions that show that R is congruent to S and then continue with the motions that show S is congruent to T.

   d. Yes, with a scale factor = 1.
5. Instructor: There are the 5 suggested by the 5 2D tetrominoes (see below), plus another one pictured below to the right (for us, its mirror image would be considered to be congruent).

Instructor:

7. a.



18.5 Some Special Polyhedra

1. a. AT b. ST c. ST d. AT e. ST f. ST g. AT h. ST i. ST j. ST k. ST l. AT
2. Knowing how many types (and what the types are) can enable one to ask, "Why are these the only ones?" and perhaps reveal something important about them. If only regular polyhedra can appear in some context for some theoretical reason, then one will know ahead of time what the possibilities are.
3. a. A 20-faced polyhedron (icosahedron), perhaps regular, made up of 20 triangular regions.

   b. A 12-faced polyhedron (dodecahedron), perhaps regular, made up of 12 pentagonal regions.

   c. An 8-faced polyhedron (octahedron), perhaps regular, made up of 8 triangular regions.