Introductory Geometry Quiz   Solutions
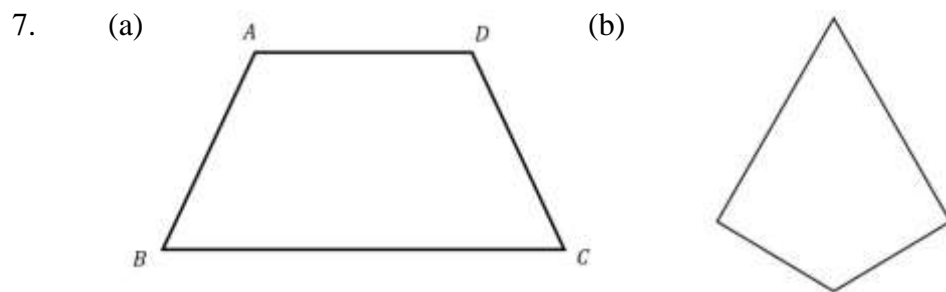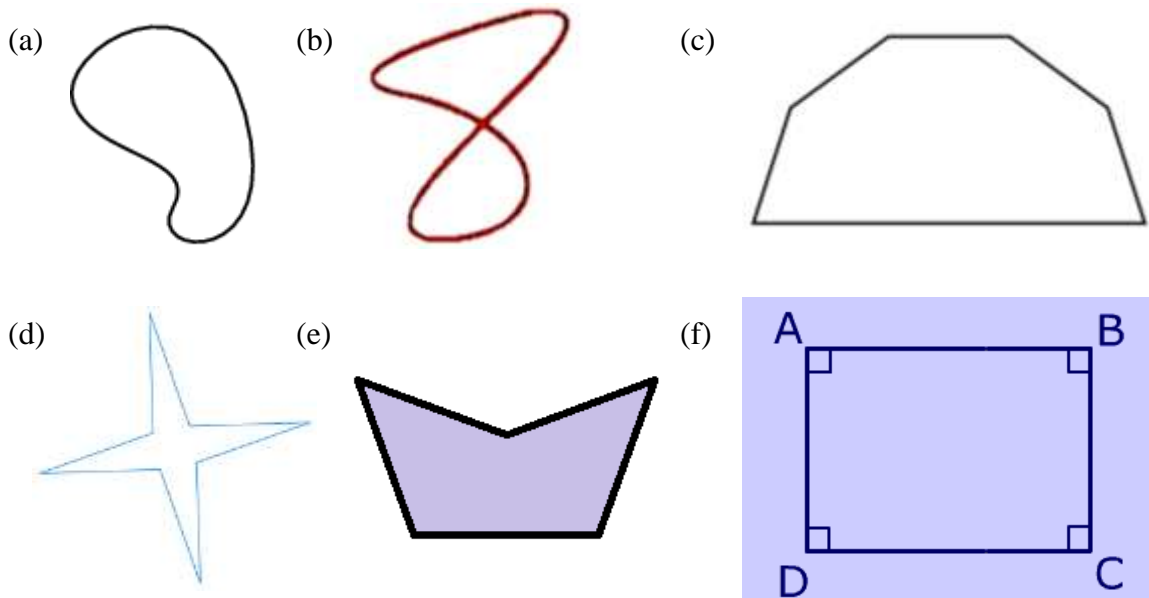
1.   50 squares

2.   6 boxes

3.   (a) Line AB, line AC   (b) Ray BA, ray BC   (c) Segment AC

4.   (a) Line EF or line CD or line DE   (b) Parallel   (c) Perpendicular

5.   (a) 134°30'   (b) 45'   (c) 90°

6.   Answers may vary.

(a)   (b)   (c)

(d)   (e)   (f)
A   B

D   C

7.   (a)   (b)

A   D

B   C
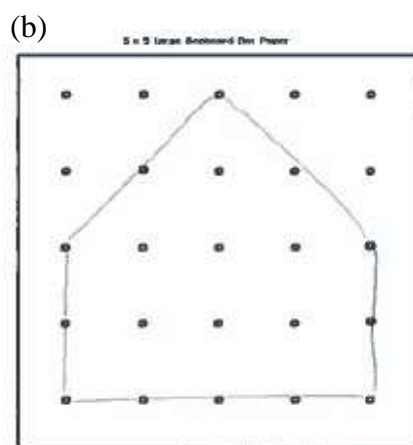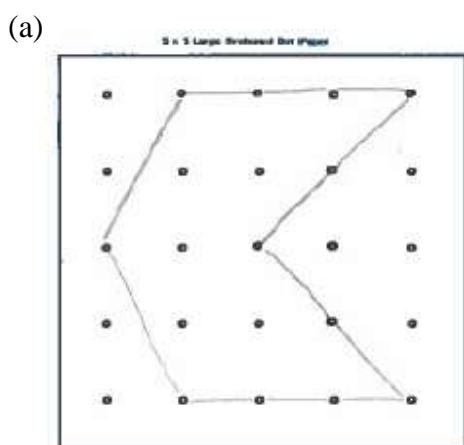
8.   Interior angle 144°; Exterior angle 36°; Central angle 36°

9.   (a) 70°   (b) 45°   (c) 65°   (d) 45°   (e) 70°   (f) 110°

10.   Answers may vary.   (a) <1 and <5, <3 and <57   (b) <4 and <6, <3 and <5

11.   100°

12.   (a) Octagon   (b) Dodecagon

13.   Straight

14.   (a) Right scalene   (b) Parallelogram

15.   (a) 46°   (b) 62°

16.   Answers may vary.

(a)

(b)

17.   (a) 1,080°   (b) 360°

18.   Answers may vary.

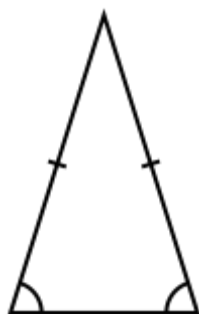(a) Diagonals are perpendicular. All 4 sides are congruent.

(b) Diagonals are congruent. All 4 angles are congruent.

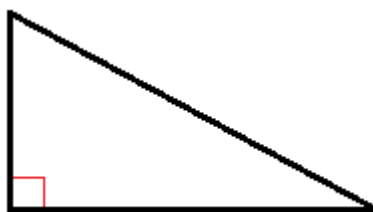19.   (a) 35°   (b) 50°   (c) 85°   (d) 25°   (e) 75°   (f) 30°
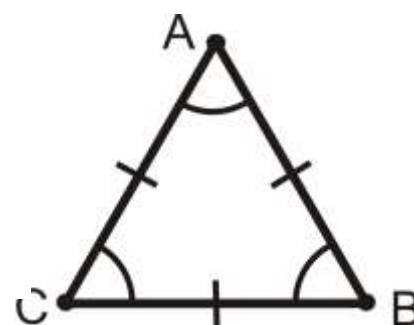
20.   Answers may vary.

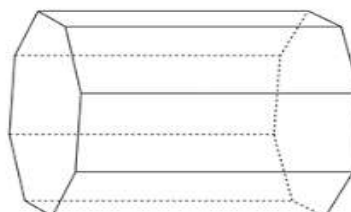(a) Acute isosceles   (b) Right scalene   (c) Equilateral equiangular

21.   (a) Tetrahedron   (b) Cube or hexahedron   (c) Octahedron
        (d) Dodecahedron   (e) Icosahedron
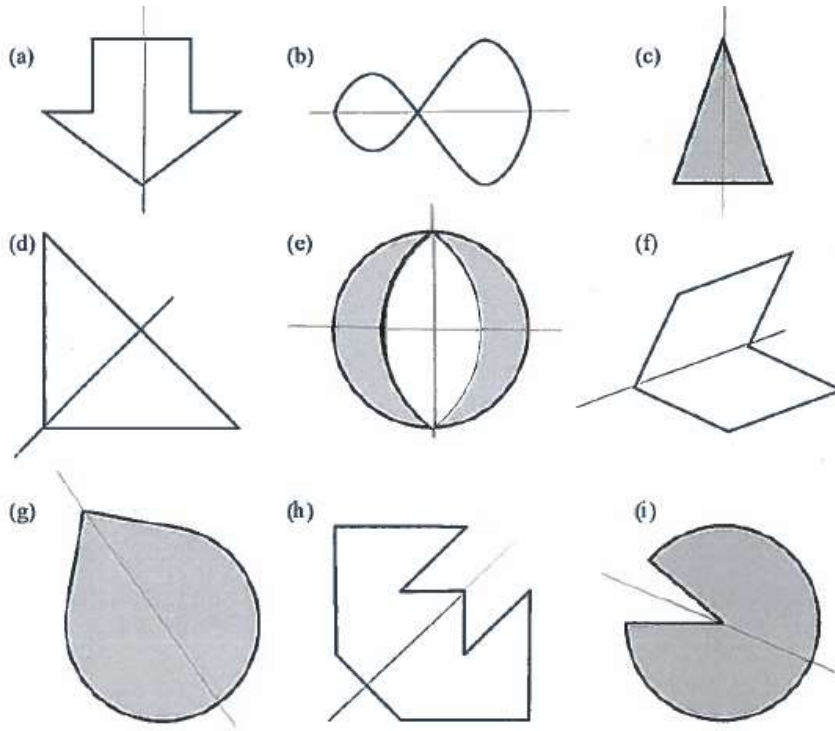
22.   Right rectangular prism

23.   16; 24 (The shape is an octagonal prism,
        and here is an image of one.)

24. Point symmetry (180° rotational) and reflectional (vertical and horizontal lines)

25.

26. (a) False   (b) False   (c) True

27. 43.5°, 49.5°, and 87°

28. 47°

29. (a) 45°   (b) 95°   (c) 85°

30. (a) 49°   (b) 131°

31. Yes. This makes good sense for the right triangle and rectangle relationship. Generalizing to all triangles is a little less clear. Going from a rectangle to a parallelogram (both have a sum of 360°) is clearer, and then dividing a parallelogram into two congruent triangles is more clearly generalizable (for all triangle types, not just right triangles).

32. (a) 240°   (b) 60°   (c) 120°

33. (a) 12 sides   (b) Since 360° is not divisible by 35°, this regular polygon is not possible.
(c) This is also not possible since the sum of exterior angles is always 360°.
(d) 24 sides

34.
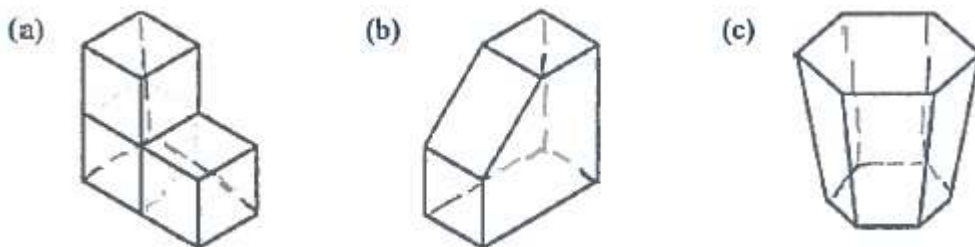
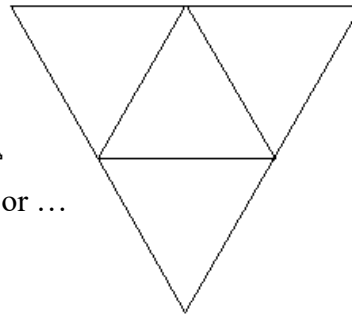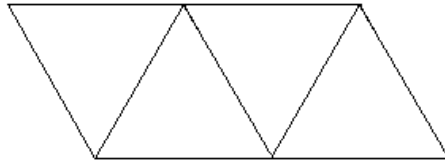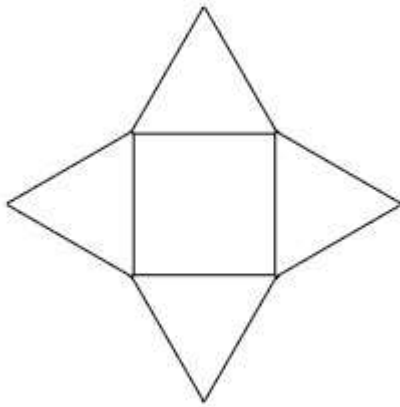35.   (a) 1   (b) 0   (c) 2   (d) 1   (e) 10   (f) 3

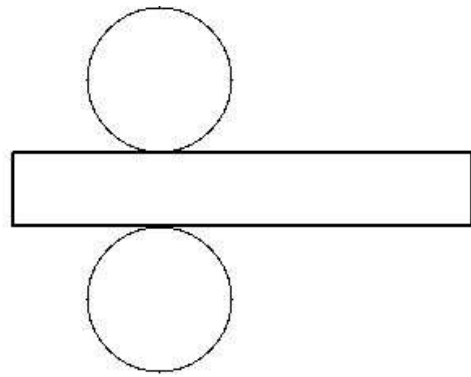36.   (a) Line and turn   (b) Line, turn, and point   (c) Line, turn, and point

37.   (a)

Either … or …

(b)   (c)

38.   Answers may vary.

(1) The purple dodecagon is above the G, and the cylinder is below the G.
(2) The circle is behind the rainbow, and the dog is next to the cube.
(3) The leaf is in front of the A, and the heart is beside the rectangle.