

True/False

1. Every kite is a rhombus, but not every rhombus is a kite.
2. It is possible to have a right scalene triangle
3. A square pyramid has 5 faces, 6 vertices, and 8 edges.
4. Every quadrilateral will tessellate the plane.
5. Every isosceles triangle has reflection (line) symmetry
6. In a regular polygon all angles are congruent and all sides are congruent.
7. The Van Hiele Theory identifies 3 levels that learning geometry passes through.
8. Every Moebius strip has two sides.

9. Determine the measure of a vertex angle in a regular decagon.
10. Determine the measure of a central angle in a regular 14-gon.
11. Circle the shapes that always have rotational symmetry (through less than a full turn)
 - i. parallelogram
 - ii. Kite
 - iii. Trapezoid

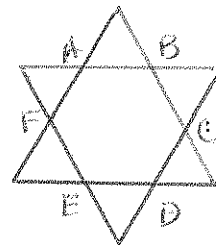
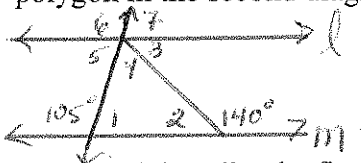
12. Draw the following, if possible. If not possible, explain why.:
 - i. a quadrilateral that is not a rectangle.
 - ii. A pentagonal prism
 - iii. A kite
 - iv. an obtuse isosceles triangle
 - v. a parallelogram with no right angles
 - vi. a rhombus that is not a square
 - vi. complimentary angles
 - vii. A reflex angle

13. Which of the following types of regular n-gons will form tessellations of the plane by themselves? For each one explain why or why not.

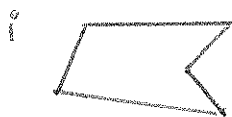
- i. triangles
- ii. decagons
- iii. octagons
- iv. hexagons

14. Draw: i. concurrent lines ii. 4 collinear points

15. Find the measure of each angle given that $l \parallel m$ in the first diagram and that ABCDEF is a regular polygon in the second diagram.



16. Name and describe the first 2 levels of the Van Hiele theory.
17. Identify the type of polygon, or explain why it isn't a polygon.

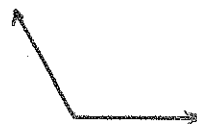


18. Prove that vertical angles are congruent. (Think about what you know!)
19. Given a trapezoid and a square, draw an example of where they intersect in exactly the number of points given.

- i. one point
- ii. two points
- iii. three points

20. On dot paper, draw a square no sides of which are vertical.

21. Using your compass, measure the angle that is given, and draw a 60 degree angle.



22. What regular polygon has 120 degree rotational symmetry?

23. A cube is one of the Platonic Solids. Name the other four and draw one of them (not the cube).

24. Draw a right rectangular pyramid then give the name of each part labeled and color two skew lines. Also know + be able to use Euler's Formula.

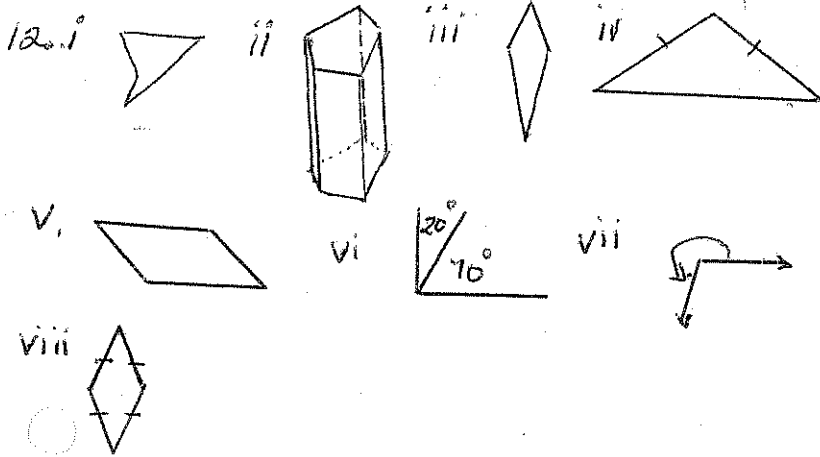
Answers:

1. F 2. T 3. T 4. T 5. T 6. T 7. F 8. F

9. $m \text{ one vertex } \angle = \frac{(n-2)(180)}{n}$
 $= \frac{(10-2)(180)}{10} = \boxed{144^\circ}$

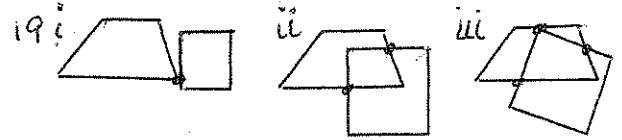
10. $m \text{ central } \angle = \frac{360}{n} = \frac{360}{14} = \boxed{25.7^\circ}$

11. parallelogram

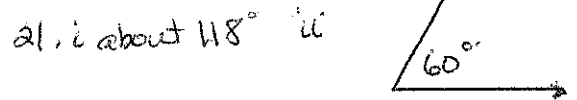


17. i pentagon ii not simple. iii not all straight sides

18. Think some about supplementary angles while looking at some vertical \angle 's.



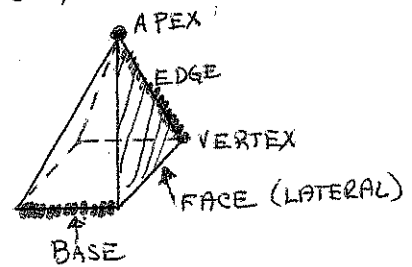
20. I leave this to you.



22. $\frac{360}{120} = 3$ so a 3-sided polygon so an equilateral Δ .

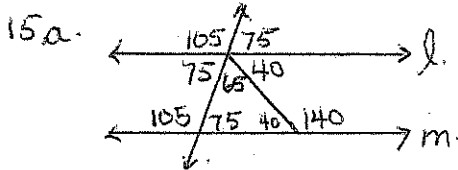
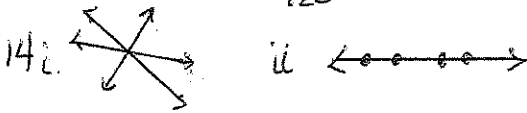
23. For you!

24.

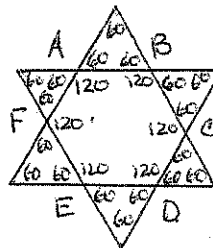


iii SKENLINES

13. i. yes cuz $\frac{360}{60} = 6 \leftarrow$ its an integer
 ii. no cuz $\frac{360}{144} = 2.5 \leftarrow$ its not an integer
 iii. no cuz. $\frac{360}{135} = 2.6$
 iv. yes cuz $\frac{360}{120} = 3$



15b.



THE INTERIOR IS A REGULAR HEXAGON. SO ONE VERTEX \angle MEASURES $\frac{(6-2)(180)}{6} = 120^\circ$

BY SUPPLEMENTARY \angle 'S YOU GET 60° angles. Then since Δ 's add up to 180° all the \angle 's are 60° 's in the Δ 's

16. Level 0 Recognition. (you do the rest)
 Level 1 Analysis.

Geometry Vocabulary

- Scalene
- Equilateral
- Acute
- Line segment
- Line
- Point
- Plane
- Triangle
- Quadrilateral
- Side
- Vertex (vertices)
- Angle
- Right Angle
- Perpendicular
- Parallel
- Square
- Rectangle
- Quadrilateral
- Parallelogram
- Kite
- Rhombus
- Congruent
- Equiangular
- Trapezoid
- Isosceles Trapezoid

Isosceles

Obtuse

Square lattice

Concurrent Lines

Collinear Points

Line Segment

Endpoints

Midpoint

Length

Ray

Interior and Exterior of an Angle

Protractor

Compass

Adjacent Angles

Acute, Obtuse, Right & Straight Angles

Reflex Angles

Vertical Angles

Supplementary Angles

Complimentary Angles

Perpendicular

Corresponding Angles

Alternate Interior Angles

Alternate Exterior Angles

Triangle $\triangle ABC$

Angle Sum in a Triangle

Angle Sum in a Quadrilateral

Polygon

Closed

Simple