

Chapter 9 – Geometric Figures *Answer Key*

9.1 Basic Geometric Definitions

Answers

1. Ray
2. Line segment
3. Line
4. Angle
5. True
6. line segment
7. Endpoints
8. No
9. Because there are endpoints
10. no
11. A building must have endpoints
12. Line – set of connected points without endpoints
13. Line segment – set of connected points with two endpoints
14. ray – line with one endpoint that continues indefinitely in the other direction
15. Point – location in space that doesn't have size or shape

9.2 Intersecting and Parallel Lines

Answers

1. Parallel
2. Intersecting
3. Intersecting
4. Intersecting
5. Parallel
6. Parallel
7. Intersecting
8. Parallel
9. Parallel
10. Intersecting
11. Intersecting
12. Parallel
13. Parallel
- 14 – 16 Answers Vary

9.3 Identification of Angles by Vertex and Ray

Answers

- 1 – 12 Answers Vary
13. Ray – a line that has one endpoint and continues indefinitely in the other direction
14. Line – a set of connected points with no endpoints
15. Vertex – the center point on an angle
16. Line segment – a set of connected points with two endpoints

9.4 Angle Measurement

Answers

- 1 – 15 Answers will vary.

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9.5 Angle Classification

Answers

- | | | | | |
|-------------|-------------|-----------|-----------|-----------|
| 1. Straight | 2. Obtuse | 3. Acute | 4. Right | 5. Acute |
| 6. Right | 7. Straight | 8. Obtuse | 9. Obtuse | 10. Acute |
| 11. Acute | 12. Obtuse | 13. Acute | 14. Acute | 15. Acute |

9.6 Supplementary and Complementary Angle Pairs

Answers

- | | | |
|------------------|-------------------|-------------------|
| 1. Complementary | 2. Complementary | 3. Supplementary |
| 4. Supplementary | 5. 90° | 6. 180° |
| 7. False | 8. True | 9. False |
| 10. False | 11. Supplementary | 12. Complementary |
| 13. Neither | 14. Neither | 15. Complementary |

9.7 Triangle Classification by Angles

Answers

- | | | | | |
|------------|-----------|----------------|----------------|------------|
| 1. Right | 2. Acute | 3. Equiangular | 4. Obtuse | 5. Acute |
| 6. Acute | 7. Obtuse | 8. Right | 9. Equiangular | 10. Obtuse |
| 11. Obtuse | 12. Acute | 13. Acute | 14. Obtuse | 15. Acute |

9.8 Triangle Classification by Side Lengths

Answers

- | | | | | |
|----------|---------------|-----------------|----------------------------|-----------|
| 1. 2 | 2. 1 | 3. 180° | 4. Greater than 90° | 5. 1 |
| 6. 2 | 7. 60° | 8. Inside angle | 9. False | 10. True |
| 11. True | 12. True | 13. False | 14. True | 15. False |

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9.9 Angle Measures in Given Triangles

Answers

- | | | | | |
|----------|----------------|----------------|----------------|----------------|
| 1. True | 2. True | 3. False | 4. False | 5. Protractor |
| 6. Right | 7. Straight | 8. Acute | 9. Obtuse | 10. 3 |
| 11. 3 | 12. 90° | 13. 60° | 14. 75° | 15. 25° |

9.10 Quadrilateral Classification

Answers

- | | | |
|-------------------|-------------------------|-------------------|
| 1. Rectangle | 2. Square | 3. Parallelogram |
| 4. Trapezoid | 5. Rhombus | 6. Quadrilateral |
| 7. Trapezoid | 8. Square | 9. Rectangle |
| 10. Rhombus | 11. Square or rectangle | 12. Quadrilateral |
| 13. Parallelogram | 14. True | 15. True |

9.11 Angle Measures in Given Quadrilaterals

Answers

- | | | | | |
|---------------|-----------------|-----------------------------|-------------------|-----------------|
| 1. True | 2. 360° | 3. 90° | 4. 90° | 5. False |
| 6. 60° | 7. 85° | 8. 70° | 9. 105° | 10. 360° |
| 11. 2 | 12. 180° | 13. $180 + 180 = 360^\circ$ | 14. Parallelogram | 15. Trapezoid |

9.12 Polygon Classification

Answers

- | | | |
|---------------------------------------|--------------------|-------------------|
| 1. Polygon | 2. Not a Polygon | 3. Not a polygon |
| 4. Not a polygon | 5. Polygon | 6. Not a polygon |
| 7. Polygon | 8. Polygon | 9. Square |
| 10. It has a curve | 11. It has a curve | 12. Open figure |
| 13. Closed figure with straight lines | 14. Open figure | 15. Closed figure |

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9.13 Regular and Irregular Polygons

Answers

- | | | | | | |
|--------------|--------------|-------------|---------------|-------------|---------------|
| 1. Regular | 2. Irregular | 3. Regular | 4. Irregular | 5. Regular | 6. Regular |
| 7. Regular | 8. Irregular | 9. Regular | 10. True | 11. Hexagon | 12. Heptagon |
| 13. Pentagon | 14. Octagon | 15. Regular | 16. Irregular | 17. Regular | 18. Irregular |

9.14 Relation of Polygon Sides to Angles and Diagonals

Answers

- | | | | | |
|------------------|------------------|-----------------|------------------|-----------------|
| 1. Hexagon | 2. Pentagon | 3. Octagon | 4. Rectangle | 5. Octagon |
| 6. Parallelogram | 7. 2 | 8. 1 | 9. 3 | 10. 720° |
| 11. 540° | 12. 1440° | 13. 900° | 14. 1080° | 15. 360° |

9.15 Triangle Identification as Similar, Congruent or Neither

Answers

Images for questions 1 – 5 are missing and need to be put onto the web page.

- | | | | |
|---|-----------|----------|-------------|
| 6. Yes, congruent triangles have the same angle measures. | 7. True | 8. False | |
| 9. True | 10. False | 11. True | 12. Similar |
13. Congruent means being exactly the same with the same shape and measures.
- 14 – 15. Answers will vary

9.16 Corresponding Parts of Congruent Figures

Answers

- | | | |
|----------------|--------------------------------|----------------------|
| 1. Congruent | 2. Has the same size and shape | 3. GH |
| 4. GI | 5. HI | 6. IO |
| 7. EF | 8. Answers will vary | 9. A, S, or C |
| 10. D, P, or B | 11. C, Q, or A | 12. AB, SR, DC |
| 13. BC, AD, PS | 14. Angle B, P, or R | 15. Angle Q, S, or C |

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9.17 Corresponding Parts of Similar Figures

Answers

- | | | |
|-----------------------------------|--|--------------|
| 1. Similar | 2. Has the same shape, but not the same size | 3. QR |
| 4. QS | 5. BC | 6. Angle Q |
| 7. Angle R | 8. Angle S | 9. Congruent |
| 10. Same size, shape and measures | 11. QT | 12. TS |
| 13. MN | 14. NO | 15. QR |

9.18 Unknown Measures of Similar Figures

Answers

- | | | |
|------------|---|------------|
| 1. Similar | 2. Same shape, but not the same size | 3. QR |
| 4. QS | 5. BC | 6. $x = 7$ |
| 7. $y = 3$ | 8. Cross Multiplication and division solving a proportion | 9. 12 |
| 10. 2 | 11. 20 | 12. 2 |
| 13. 5 | 14. 38 | 15. 36 |

9.19 Indirect Measurement

Answers

- | | | | | |
|-----------|------------|-----------|----------------|------------|
| 1. Yes | 2. Yes | 3. Yes | 4. Yes | 5. 15 feet |
| 6. 5 feet | 7. 12 feet | 8. 5 feet | 9. Answer Vary | 10. 3 cm |
| 11. 56" | 12. 9 | 13. 2 | 14. 1.6 | 15. 21 |

9.20 Lines of Symmetry

Answers

1 -6 Answers vary

- | | | | | | |
|--------|-------|--------|---------|--------|--------|
| 7. Yes | 8. No | 9. Yes | 10. Yes | 11. No | 12. No |
|--------|-------|--------|---------|--------|--------|

13 – 16 Answers vary

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9.21 Number Patterns

Answers

1. 12	2. 8	3. 64	4. 25	5. 7.5
6. 77	7. 108	8. 19	9. 7	10. 17
11. 42	12. 50	13. 70	14. 3.125	15. 23

9.22 Venn Diagrams

Answers

Answers will vary due to the drawing of Venn diagrams.