Review: Points, Lines, Planes, and Angles

Matching

*Match each of the following vocabulary words with its definition.*

- a. line segment  
- b. line  
- c. obtuse angle  
- d. point  
- e. parallel lines  
- f. perpendicular lines

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1. a straight path that extends without end in opposite directions
2. a part of a line between two endpoints
3. an angle whose measure is greater than 90° but less than 180°
4. two lines that intersect to form 90° angles
5. an exact location in space
6. two lines that never intersect

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Short Answer

*Use the diagram to name each geometric figure.*

![Diagram of geometric figures](image)

12. Name three points on the figure.
13. Name two lines on the figure.
14. Name a plane on the figure.
Use this diagram to give a possible name to each figure.

15. Name three different line segments on the line.

16. Give another name for ray $\overrightarrow{XY}$

17. What type of angle is the following: acute, right, obtuse, or straight?

18. What type of angle is the following: acute, right, obtuse, or straight?

19. What type of angle is the following: acute, right, obtuse, or straight?

20. Classify the pair of lines as intersecting, parallel, perpendicular, or skew lines.
21. Classify the pair of lines as intersecting, parallel, perpendicular, or skew lines.

22. Classify the pair of lines as intersecting, parallel, perpendicular, or skew lines.

23. A school nurse has the following patch on her nurse’s uniform. What type of lines are the lines on the patch?
Review: Points, Lines, Planes, and Angles

Answer Section

MATCHING

1. ANS: B  REF: Page 322  OBJ: 7-1.1 Identifying Points, Lines, and Planes;  STO: Geometry and Spatial Sense.6.2  TOP: 7-1 Points, Lines, and Planes;  KEY: point, line, plane
2. ANS: A  REF: Page 323  OBJ: 7-1.2 Identifying Line Segments and Rays  STO: Geometry and Spatial Sense.6.2  TOP: 7-1 Points, Lines, and Planes;  KEY: line segment, ray
3. ANS: C  REF: Page 326  OBJ: 7-2.1 Measuring an Angle with a Protractor  STO: Geometry and Spatial Sense.6.2  TOP: 7-2 Angles  KEY: angle, measurement, protractor
4. ANS: F
5. ANS: D
6. ANS: E
7. ANS: B  REF: Page 352  OBJ: 7-1.1 Identifying Points, Lines, and Planes;  STO: Geometry and Spatial Sense.6.1  TOP: 7-1 Points, Lines, and Planes;  KEY: point, line, plane
8. ANS: A  REF: Page 323  OBJ: 7-1.2 Identifying Line Segments and Rays  STO: Geometry and Spatial Sense.6.2  TOP: 7-1 Points, Lines, and Planes;  KEY: line segment, ray
9. ANS: D
10. ANS: C
11. ANS: E

SHORT ANSWER

12. ANS: C, B, F
   A point is an exact location in the diagram and is labeled with a capital letter. Additional points on the diagram are D and G.

   REF: Page 322  OBJ: 7-1.1 Identifying Points, Lines, and Planes;
   STO: Geometry and Spatial Sense.6.1  TOP: 7-1 Points, Lines, and Planes;
   KEY: point, line, plane
   NOT: /A/ Are these points or line segments in the diagram?/B/ Did you correctly identify the points in this diagram? /C/ Correct! /D/ Do all three of these points appear on the diagram?
13. ANS:

\[ \overrightarrow{BF}, \overrightarrow{DG} \]

A line is a straight path that extends forever in both directions. Lines are named by two points that appear on the line. Additional lines on the diagram are \[ \overrightarrow{BD}, \overrightarrow{BG} \].

REF: Page 322 OBJ: 7-1.1 Identifying Points, Lines, and Planes;
STO: Geometry and Spatial Sense.6.1 TOP: 7-1 Points, Lines, and Planes;
KEY: point, line, plane
NOT: /A/ Correct! /B/ Do both of these lines appear on the diagram? /C/ Are these points or lines in the diagram? /D/ Did you correctly identify two lines in this diagram?

14. ANS:

Plane CFG

A plane is a flat surface that extends forever in all directions. A plane is named by any three points in the plane that are not all on the same line.

REF: Page 322 OBJ: 7-1.1 Identifying Points, Lines, and Planes;
STO: Geometry and Spatial Sense.6.1 TOP: 7-1 Points, Lines, and Planes;
KEY: point, line, plane
NOT: /A/ Do all three of these points appear in this plane? /B/ Correct! /C/ Are these two lines or the name of a plane? /D/ Are these points on the same line?

15. ANS:

\[ \overrightarrow{XY}, \overrightarrow{ZX}, \overrightarrow{YZ} \]

A line segment is made of two endpoints and all points between the endpoints. A line segment is named by the two endpoints.

REF: Page 323 OBJ: 7-1.2 Identifying Line Segments and Rays
STO: Geometry and Spatial Sense.6.1 TOP: 7-1 Points, Lines, and Planes;
KEY: line segment, ray
NOT: /A/ Are these line segments or points? /B/ Are these line segments or rays? /C/ Correct! /D/ Are these line segments or lines?

16. ANS:

\[ \overrightarrow{XZ} \]

A ray has one endpoint and extends forever in one direction. A ray is named by its endpoint and another point on the ray in that order.

REF: Page 323 OBJ: 7-1.2 Identifying Line Segments and Rays
STO: Geometry and Spatial Sense.6.1 TOP: 7-1 Points, Lines, and Planes;
KEY: line segment, ray
NOT: /A/ Is this a ray or a line? /B/ Correct! /C/ Is this a ray or a line segment? /D/ Are two rays the same if they have different endpoints?
17. ANS:
Acute angle
A right angle measures 90°. An acute angle measures less than 90°. An obtuse angle measures greater than 90° but less than 180°. A straight angle measures exactly 180°.

REF: Page 326 OBJ: 7-2.1 Measuring an Angle with a Protractor
STO: Geometry and Spatial Sense.6.2 TOP: 7-2 Angles KEY: angle, measurement, protractor
NOT: /A/ Correct! /B/ Does this angle measure 180° and form a line? /C/ Does this angle measure 90°? /D/ Does this angle measure greater than 90°?

18. ANS:
Obtuse angle
A right angle measures 90°. An acute angle measures less than 90°. An obtuse angle measures greater than 90° but less than 180°. A straight angle measures exactly 180°.

REF: Page 326 OBJ: 7-2.1 Measuring an Angle with a Protractor
STO: Geometry and Spatial Sense.6.2 TOP: 7-2 Angles KEY: angle, measurement, protractor
NOT: /A/ Does this angle measure less than 90°? /B/ Correct! /C/ Does this angle measure 90°? /D/ Does this angle measure 180° and form a line?

19. ANS:
Right angle
A right angle measures 90°. An acute angle measures less than 90°. An obtuse angle measures greater than 90° but less than 180°. A straight angle measures exactly 180°.

REF: Page 326 OBJ: 7-2.1 Measuring an Angle with a Protractor
STO: Geometry and Spatial Sense.6.2 TOP: 7-2 Angles KEY: angle, measurement, protractor
NOT: /A/ Correct! /B/ Does this angle measure greater than 90°? /C/ Does this angle measure 180°? /D/ Does this angle measure 180° and form a line?

20. ANS:
Parallel
The two lines are in the same plane and do not intersect; they are parallel.

REF: Page 337 OBJ: 7-4.1 Classifying Pairs of Lines STO: Geometry and Spatial Sense.6.4 TOP: 7-4 Classifying Lines KEY: line relationship, classify
NOT: /A/ Correct! /B/ Do these lines intersect to form 90° angles? /C/ Do these lines cross at one common point? /D/ Are these lines in different planes and not parallel or perpendicular?

21. ANS:
Intersecting
Lines that cross at one common point are intersecting.

REF: Page 337 OBJ: 7-4.1 Classifying Pairs of Lines STO: Geometry and Spatial Sense.6.4 TOP: 7-4 Classifying Lines KEY: line relationship, classify
NOT: /A/ Are these lines in the same plane and never intersect? /B/ Do these lines intersect to form 90° angles? /C/ Correct! /D/ Are these lines in different planes and not parallel or perpendicular?
22. **ANS:**  
Skew  
These lines are in different planes and are not parallel or perpendicular.

REF: Page 337  
OBJ: 7-4.1 Classifying Pairs of Lines  
STO: Geometry and Spatial Sense.6.4  
TOP: 7-4 Classifying Lines  
KEY: line relationship, classify  
NOT: /A/ Are these lines in the same plane, and do they never intersect? /B/ Do these lines intersect to form 90° angles? /C/ Do these lines cross at one common point? /D/ Correct!

23. **ANS:**  
Perpendicular  
These lines intersect to form 90° angles; they are perpendicular lines.

REF: Page 337  
OBJ: 7-4.2 Application: Classify Pairs of Lines  
STO: Geometry and Spatial Sense.6.4  
TOP: 7-4 Classifying Lines  
KEY: line relationship, classify  
NOT: /A/ Are these lines in the same plane without intersecting? /B/ Correct! /C/ Do these lines form right angles at the point of intersection? /D/ Are these lines in different planes and not parallel or perpendicular?