Geometry Semester 1 Mid Term Review

Multiple Choice
Identify the choice that best completes the statement or answers the question.

Refer to Figure 1 #1-3.

1. What is another name for line *n*?

A. line *JB*
B. $\overleftrightarrow{DC}$
C. $\overleftrightarrow{GF}$
D. *AC*

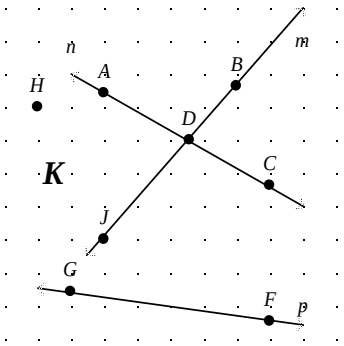


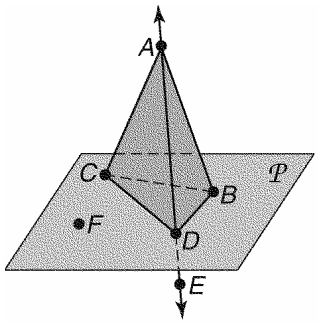
Figure 1

2. Name the intersection of lines *m* and *n*.

F. *K*
G. $\overleftrightarrow{DC}$
H. *B*
J. *D*

3. Does line *p* intersect line *m* or line *n*? Explain.
A. Yes, it intersects both *m* and *n* when all three are extended.
B. No, the lines do not meet in this diagram.
C. Yes, it intersects line *m* when both are extended.
D. Yes, it intersects line *n* when both are extended.

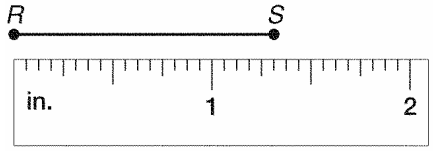
Use the figure to the right for #4 & 5.



4. Which three points in the figure are collinear?
F. *C, D, F*
G. *A, E, F*
H. *B, C, D*
J. *A, D, E*

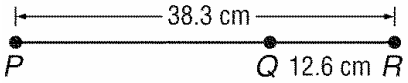
5. Name the intersection of the plane that contains points *A*, *B*, and *D* and the plane P.
A. point *D*
B. triangle *BCD*
C. *AD*
D. $\overleftrightarrow{BD}$

6. Find the length of *RS*.



F. $1\frac{5}{16}$ in.
G. $1\frac{3}{8}$ in.
H. $1\frac{7}{16}$ in.
J. $1\frac{5}{8}$ in.

7. Find the length of PQ.

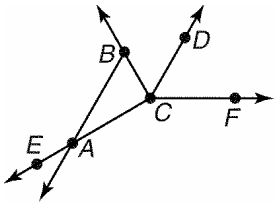


A. 50.9 cm
B. 46.3 cm
C. 25.7 cm
D. 21.3 cm

8. Find the distance between $P(2, 8)$ and $Q(5, 3)$.
F. 9
G. $\sqrt{18}$
H. $\sqrt{34}$
J. $\sqrt{170}$

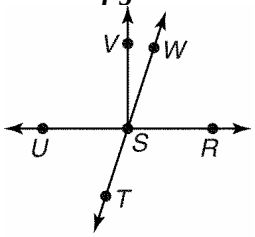
9. Find the coordinates of the midpoint of AS if $A(-4, 7)$ and $S(5, 3)$.
A. (1, 10)
B. $\left(-4\frac{1}{2}, 2\right)$
C. $\left(\frac{1}{2}, 5\right)$
D. $\left(-\frac{1}{2}, 5\right)$

10. ***Use the figure to the right.*** What type of angle is $\angle BAC$?



F. acute angle
G. obtuse angle
H. right angle
J. straight angle

Use the figure below for #11-14.



11. Which pair of angles are supplementary?
A. $\angle USV, \angle VSW$
B. $\angle VSW, \angle WSR$
C. $\angle TSV, \angle VSW$
D. $\angle TSR, \angle USW$

12. Which angle is a vertical angle to $\angle UST$?
F. $\angle VSW$
G. $\angle USV$
H. $\angle TSR$
J. $\angle WSR$

13. If $m\angle VSR = 8x + 18$, find x so that $US \perp VS$.
A. 9
B. 12.25
C. 72
D. 90

14. Find $m\angle USW$ if $m\angle USW = 7x - 34$ and $m\angle TSR = 4x + 29$.
F. 147
G. 113
H. 84
J. 21

15. Find y if B is between A and C, AB is $2y$, BC is $6y$, and AC is 48.

A. 24
C. 6
B. 8
D. 4

16. Make a conjecture about the next item in the sequence. 1, 4, 16, 64, 256

F. 1024
H. 4096
G. 1025
J. 1022

17. Make a conjecture based on the information AB bisects XY at Z.

A. $AZ = ZB$
C. $AB = XY$
B. $\angle AZX \cong \angle AZY$
D. $XZ = YZ$

18. Determine whether the conjecture is true or false. Give a counterexample for any false conjecture
Given: points A, B, C, and D
Conjecture: A, B, C, and D are coplanar.

F. False; the four points do not have to be in a straight line.
G. True
H. False; two points are always coplanar but four are not.
J. False; three points are always coplanar but four are not.

19. If p is false and q is true, what is the truth value of p or q?

A. true
C. 0
B. false
D. 1

Use the following statements for # 20 & 21 to write a compound statement for the conjunction or disjunction. Then find its truth value.

p: An isosceles triangle has two congruent sides.
q: A right angle measures 90º
r: Four points are always coplanar.
s: A decagon has 12 sides.

20. $p \vee q$

F. An isosceles triangle has two congruent sides and a right angle measures 90º; true.
G. An isosceles triangle has two congruent sides or a right angle measures 90º; true.
H. An isosceles triangle has two congruent sides or four points are always coplanar; true.
J. An isosceles triangle has two congruent sides or a right angle measures 90º; false.

21. $q \wedge p$

A. A right angle measures 90º or an isosceles triangle has two congruent sides; true.
B. A right angle measures 90º and an isosceles triangle has two congruent sides; true.
C. A right angle measures 90º and an isosceles triangle does not have two congruent sides; false.
D. A right angle measures 90º or an isosceles triangle does not have two congruent sides; true.

Use the truth table for #22 23.

p	q	$\sim q$	$p \wedge \sim q$
T	T		
T	F		
F	T		
F	F		

22. Which would be the values in the $\sim q$ column?

F. F F T T
G. T T F F
H. F T F T
J. T F T F

23. Which would be the values in the $p \wedge \sim q$ column?

A. F T F F
B. F T T F
C. T T F T
D. T F T T

24. Identify the conclusion of the statement *Jack will go to school if today is Monday*.

F. Jack will go to school
G. Jack will not go to school
H. today is Monday
J. today is not Monday

25. Identify the inverse of the following statement.
If $x = 2$, then $x + 3 = 5$.

A. If $x + 3 = 5$, then $x = 2$.
B. If $x + 3 \neq 5$, then $x \neq 2$.
C. If $x \neq 2$, then $x + 3 \neq 5$.
D. $x = 2$ and $x + 3 = 5$.

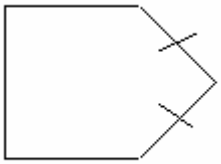
26. Identify the contrapositive of the following statement.
If $x = 5$, then $x + 8 = 13$.

F. If $x + 8 = 13$, then $x = 5$.
G. $x = 5$ and $x + 8 = 13$.
H. If $x + 8 \neq 13$, then $x \neq 5$.
J. If $x \neq 5$, then $x + 8 \neq 13$.

27. Which law can be used to determine that statement (3) is a valid conclusion to statements (1) and (2)?
(1) If an angle is acute, then it cannot be obtuse.
(2) $\angle A$ is acute.
(3) $\angle A$ cannot be obtuse.

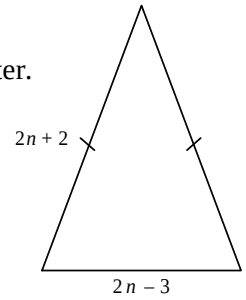
A. Law of Detachment
B. Law of Syllogism
C. Law of Converse
D. Statement (3) does not follow.

28. Name the polygon by its number of sides.
Then classify it as convex or concave and regular or irregular.



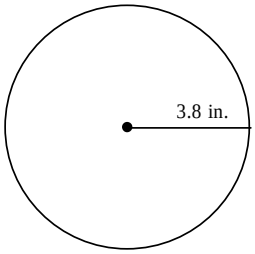
F. pentagon, convex, regular
G. pentagon, convex, irregular
H. hexagon, concave, irregular
J. hexagon, convex, irregular

29. Find the length of each side of the polygon for the given perimeter. $P = 49$ units. Find the length of each side.



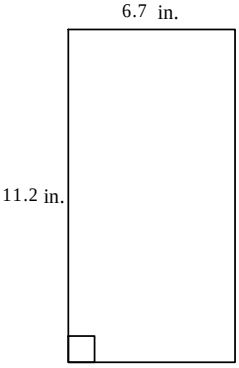
A. 18 units, 18 units, 13 units
B. 18.66 units, 18.66 units, 13.66 units
C. 27 units, 27 units, 22 units
D. 26 units, 26 units, 21 units

30. Find the circumference of the figure.



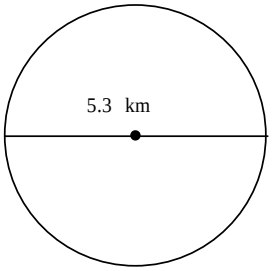
F. about 23.9 in.
G. about 11.9 in.
H. about 7.6 in.
J. about 45.3 in.

31. Find the area of the figure.



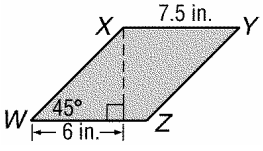
A. 75.04 in^2
B. 17.9 in^2
C. 35.8 in^2
D. 750.4 in^2

32. Find the area of the figure.



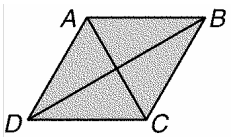
F. about 22.3 km^2
G. about 44.7 km^2
H. about 89.4 km^2
J. about 16.8 km^2

33. Find the area of parallelogram *WXYZ* if the height is 6 in. Round to the nearest tenth.



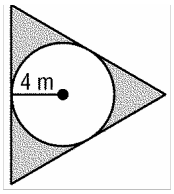
A. 27.3 in^2
B. 45.0 in^2
C. 63.6 in^2
D. 81.0 in^2

34. Rhombus *ABCD* has an area of 126 square units. If *DB* = 18 units, find *AC*.



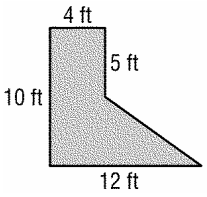
F. 18 units
G. 14 units
H. 7 units
J. 3.5 units

35. Find the area of the circle. Round to the nearest tenth.



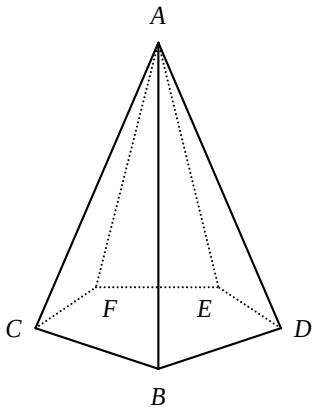
A. 12.6 m^2
B. 24.6 m^2
C. 25.1 m^2
D. 44.9 m^2

36. Find the area of the figure.



F. 31 ft^2
G. 40 ft^2
H. 60 ft^2
J. 80 ft^2

Use the figure to the right for #37-39.



37. Name the solid.
A. hexagonal pyramid
B. pentagonal pyramid
C. hexagonal prism
D. pentagonal prism

38. Name the base
F. CFEDB
G. ACB
H. CFBED
J. BDA

39. How many edges does this figure have?
A. 5
B. 8
C. 6
D. 10

Use a right cylinder with a radius of 3 inches and a height of 17 inches for #40 41. Round to the nearest tenth.

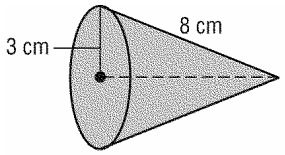
40. Find the lateral area.

F. 320.4 in^2
G. 348.7 in^2
H. 377.0 in^2
J. 537.2 in^2

41. Find the surface area.

A. 44.0 in^2
B. 87.9 in^2
C. 62.4 in^2
D. 100.5 in^2

Refer to the figure. Round to the nearest tenth.

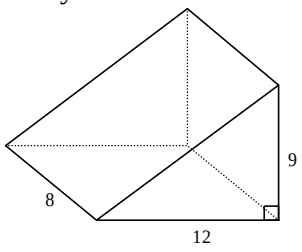


42. Find the surface area.

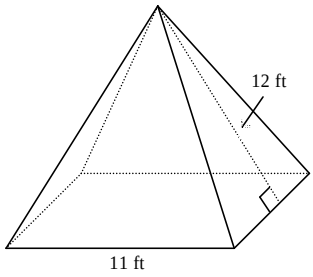
F. 75.4 cm^2
G. 103.7 cm^2
H. 131.9 cm^2
J. 150.8 cm^2

43. Find the surface area of each prism. Round to the nearest tenth if necessary while doing your calculations as well as in your final answer.

A. 442 $units^2$
B. 396 $units^2$
C. 342 $units^2$
D. 288 $units^2$



44. Find the surface area of the regular pyramid. Round to the nearest tenth if necessary.



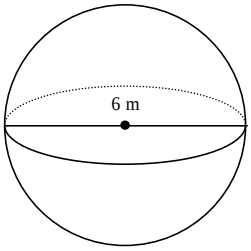
F. 385.0 ft^2
G. 264.0 ft^2
H. 528.0 ft^2
J. 1452.0 ft^2

45. Find the slant height of the cone with the given measurements, rounded to the nearest hundredth. Then use your result to find the surface area of the cone. Use 3.14 for π. Round the final answer to the nearest tenth.

height: 17 feet
radius: 13 feet

A. 873.5 $feet^2$
B. 278.2 $feet^2$
C. 3785.4 $feet^2$
D. 1404.2 $feet^2$

46. Find the surface area of the sphere. Use 3.14 for π. Round to the nearest tenth.



F. 113 m^2
G. 339.1 m^2
H. 28.3 m^2
J. 36 m^2

47. The area of the base of a prism is 96 square centimeters and the height is 9 centimeters. Find the volume of the prism.

A. 288 cm^3
B. 864 cm^3
C. 932 cm^3
D. 7776 cm^3

48. A sphere has a radius that is 12 centimeters long. Find the volume of the sphere. Round to the nearest tenth.

F. 7238.2 cm^3
G. 3619.1 cm^3
H. 1809.6 cm^3
J. 603.2 cm^3

49. A cylinder has a radius that is 7 inches long and a height that is 10 inches long. Find the volume of the cylinder. Round to the nearest tenth.

A. 1539.4 in^3
B. 490.0 in^3
C. 219.9 in^3
D. 70.0 in^3