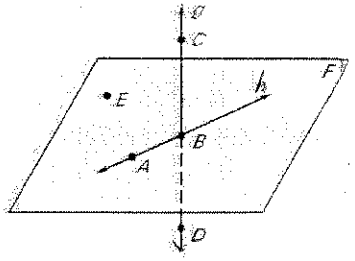
Geometry A – Chapter 1 – Test Review

Name: Key Date: _____ Hour: _____

Section 1.1 Identify Points, Lines, and Planes

1. The intersection of two lines is a Point
2. The intersection of two planes is a Line
3. The intersection of a line and a plane is a Point
4. Points that are on the same line are called collinear
5. Points that are on the same plane are called coplanar
6. What is the endpoint for $\overrightarrow{BA}$? B for $\overrightarrow{CD}$? C

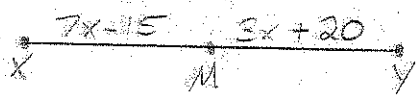
Refer to the diagram when answering TRUE or FALSE to the following questions.



7. The intersection of plane ***F*** and line ***g*** is point **B**. T
8. The intersection of line ***g*** and line ***h*** is point **B**. T
9. Points **A** and **B** are collinear. T
10. Points **A**, **B** and **E** are collinear. F
11. Points **A**, **B**, and **E** are coplanar. T
12. Points **A**, **B**, **E**, and **C** are coplanar on plane ***F***. F
13. Points **A**, **B** and **C** are collinear. F
14. Points **C**, **B**, and **D** are collinear. T
15. Another name for plane ***F*** is **ABE**. T
16. Another name for plane ***F*** is **DAB**. F
17. $\overrightarrow{BC}$ and $\overrightarrow{BD}$ are opposite rays. T
18. $\overrightarrow{BC}$ and $\overrightarrow{BA}$ are opposite rays. F

Section 1.2 Use Segments and Congruence

1. M is the midpoint of the segment. Write an equation. Find XM, MY, and XY.



$7x-15=3x+20$ $XM=7\left(\frac{35}{4}\right)-15$ $XM=\frac{185}{4}$

$4x=35$ $MY=3\left(\frac{35}{4}\right)+20$ $MY=\frac{185}{4}$

$x=\frac{35}{4}$ $XY=$ $XY=\frac{185}{2}$

2. Let J be between H and K on $\overline{HK}$. Use the Segment Addition Postulate to solve for x. Then find HJ and JK. HINT: Draw a picture and label it.

$HJ = 2x - 3$
$JK = 4x - 16$
$HK = 23$

$(2x-3)+(4x-16)=23$

$6x-19=23$

$6x=42$

$x=7$

H J K

$HJ=2(7)-3$

$JK=4(7)-16$

$28-16$

$x=7$ $HJ=11$ $JK=12$

3. The notation for the length of the segment between S and T is _____.

A. $\overline{ST}$ B. st C. ST D. $m\overline{ST}$

4. The notation for ray ST is _____.

A. ray ST B. $\overline{ST}$ C. $\overleftrightarrow{ST}$ D. $\overrightarrow{ST}$

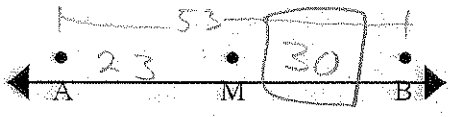
5. The notation for segment ST is _____.

A. ST B. $\overline{ST}$ C. $\overleftrightarrow{ST}$ D. $\overrightarrow{ST}$

6. If AM = 23 and AB = 53, find the length of $\overline{MB}$

Pretend the points are on the line.

$23+x=53$



Section 1.3 Use Midpoint and Distance Formulas

Find the coordinates of the midpoint of the segment with the given endpoints.

1. $R(3, 4)$ and $S(9, 4)$ $(6, 4)$

2. $R(3, 4)$ and $S(-9, -4)$ $(-3, 0)$

Find the distance, CD, between the given points.

3) $C(-4, 2)$ and $D(0, -1)$

$\sqrt{(4-0)^2+(2-1)^2}$

$\sqrt{16+9}$

5

4) $C(-4, 5)$ and $D(2, -1)$

$\sqrt{(-4-2)^2+(5+1)^2}$

$\sqrt{36+36}=\sqrt{36\cdot 2}=6\sqrt{2}$

Section 1.4 Measure and Classify Angles

1. The notation for angle S is _____.

A. $\angle S$ B. angle S C. $\overline{S}$ D. $\overleftrightarrow{S}$

2. The symbol for congruence (same measure) is _____.

A. = B. $\equiv$ C. $\approx$ D. $\leq$

3. If _____ and _____, then what is _____?

4. The measure of $\angle S$ is 105°. Classify $\angle S$ as *acute, obtuse, right, or straight.*

5. The measure of $\angle S$ is 89°. Classify $\angle S$ as *acute, obtuse, right, or straight.*

6. The measure of $\angle S$ is 180°. Classify $\angle S$ as *acute, obtuse, right, or straight.*

7. The measure of $\angle U$ is 90°. Classify $\angle U$ as *acute, obtuse, right, or straight.*

8. If $m\angle ABC = 2x+11$ and $m\angle DBA = 70°$, the what is the measure of $\angle ABC$?

$m\angle CBD = x+13$

$(2x+11)+(x+13)=70$

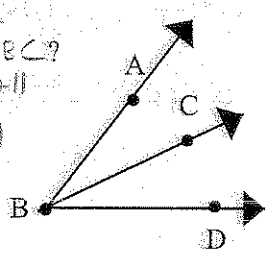
$3x+24=70$

$3x=46$

$x=\frac{46}{3}$

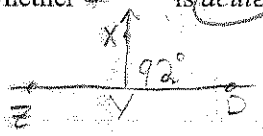
$m\angle ABC = 2\left(\frac{46}{3}\right)+11$

$= \frac{125}{3}°$



9. State whether $\angle ABD$ is *acute, obtuse, right, or straight.*

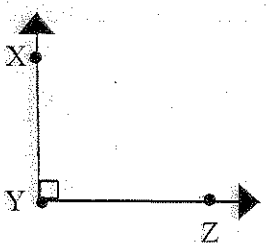
10. State whether $\angle XYZ$ is *acute, obtuse, right, or straight.*



11. Classify the angle at the right as *acute, obtuse, right, or straight.*

12. Which is NOT a name for the angle at the right? (circle one)

A. $\angle Y$ B. $\angle XYZ$ C. $\angle ZYX$ D. $\angle YZX$



13. If an obtuse angle is bisected, the resulting angles are _____.

A. never congruent B. right angles C. always acute D. always obtuse

14. If an acute angle is bisected, the resulting angles are _____.

A. never congruent B. right angles C. always acute D. always obtuse

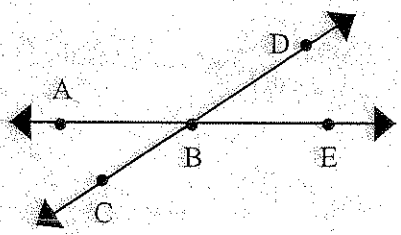
15. If a straight angle is bisected, the resulting angles are _____.

A. never congruent B. right angles C. always acute D. always obtuse

Section 1.5 Describe Angle Pair Relationships

1. Complementary angles have a sum of 90°
2. Supplementary angles have a sum of 180°
3. Linear pairs have a sum of 180°
4. Linear pairs are always adjacent. True or False
5. Supplementary angles are always adjacent. True or False can be adjacent, but don't have to be
6. Complementary angles are always adjacent. True or False

For questions 7 – 15, refer to the figure at the right.



7. What type of angle pair is ∠ABD and ∠CBA? Linear pair
8. What type of angle pair is ∠EBD and ∠ABC? Vertical
9. What type of angle pair is ∠CBE and ∠DBE? Linear pair
10. What type of angle pair is ∠CBE and ∠DBA? Vertical
11. Which angle could measure 100°? ∠ABC or ∠EBC?
12. Which angle could be supplementary to ∠DBE? ∠ABC or ∠ABD?

13. If $m\angle ABC = 5x + 40$ and $m\angle DBE = x + 110$, then solve for x.

$5x + 40 = x + 110$

$4x = 70$

$x = \frac{35}{2}$

14. If $m\angle ABD \leq 129°$, then what is **not a possible** measure for ∠ABC?

A. 105 B. 150 C. 80 D. 50

15. If $m\angle CBE < 120°$, then what is **not a possible** measure for ∠DBE?

A. 120 B. 100 C. 90 D. 20

16. ∠A and ∠B are complementary. The measure of ∠A is three times the measure of ∠B. What is $m\angle A$ and $m\angle B$?

$\angle A + \angle B = 90$ $\angle A = 3 \cdot \angle B$

$3\angle B + \angle B = 90$

$4\angle B = 90$

$m\angle B = \frac{90}{4} = \frac{45°}{2}$

$m\angle A = \frac{135°}{2}$

$\angle 2 = 5 \cdot \angle 1 + 6$ $\angle 1 + \angle 2 = 180$

$\angle 1 + 5\angle 1 + 6 = 180$

17. $\angle 1$ and $\angle 2$ are supplementary. The measure of $\angle 2$ is 6 more than five times the measure of $\angle 1$. What is $m\angle 1$ and $m\angle 2$?

$6 \cdot \angle 1 + 6 = 180$

$6 \cdot \angle 1 = 174$

$m\angle 1 = 29°$

$m\angle 2 = 151°$

Section 1.5 Describe Angle Pair Relationships (continued)

18. If $m\angle 1 = 10°$ and $m\angle 2 = 170°$, then classify the pair of angles. supplementary

19. If $\angle 1$ and $\angle 2$ are complementary and $m\angle 2 = 85°$, then $m\angle 1 = 5°$.

20. If $\angle F$ and $\angle G$ form a linear pair and $\angle G = 3 \cdot \angle F$, then $m\angle G = 135°$.

$\angle F + \angle G = 180 \rightarrow \angle F + 3\angle F = 180 \rightarrow 4\angle F = 180$ $\angle F = 45$

21. If $\angle A$ and $\angle B$ are supplementary and $\angle A = \frac{1}{2}\angle B$, then $m\angle B = 120°$.

$\angle A + \angle B = 180$ $\frac{1}{2}\angle B + \angle B = 180$

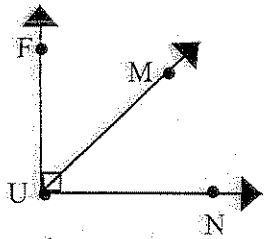
22. Given $\angle CAT$ and a third ray AP in the interior of $\angle CAT$, if $m\angle CAP = 100°$ and $\angle PAT = 80°$, then the two angles are what type of angle pair? HINT: Draw a picture!

A. complementary B. supplementary ok answer but C. linear pair is best answer D. vertical

23. If $\angle FUM$ and $\angle NUM$ are complementary and $m\angle FUM$ is 50°, then $m\angle NUM =$ 40°.

24. If $\angle NUF$ is a right angle and $\angle FUM$ is acute, then what kind of angle is $\angle NUM$?

A. straight B. right C. acute D. obtuse

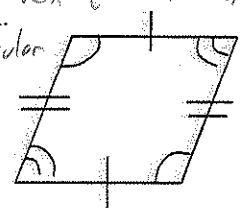


Use For #23 & 24

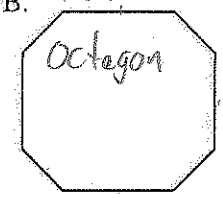
Section 1.6 Classify Polygons

1. Tell whether the figure is a **polygon**. If it is a polygon, tell whether it is **convex** or **concave**, and **classify** it by the number of sides (how many angles does it have?). Are any of the figures **regular**?

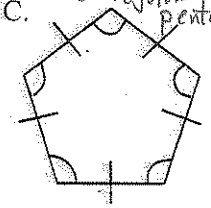
A. convex quadrilateral Not regular



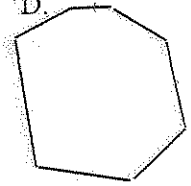
B. convex octagon



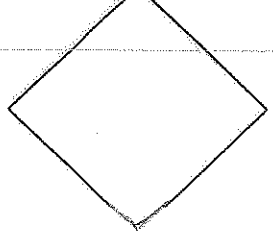
C. convex regular pentagon



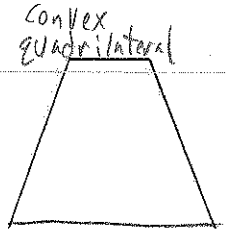
D. convex heptagon



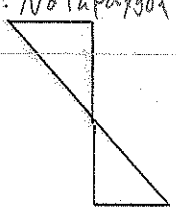
E. convex quadrilateral



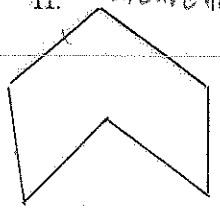
F. convex quadrilateral



G. Not a polygon



H. concave hexagon



20. The lengths of two sides of a regular pentagon are represented by the expressions $3x - 5$ and $5x - 15$. Find the length of a side of the pentagon. Find the perimeter of the pentagon.

$3x-5=5x-15$ side length $=3(5)-5=10$

$10=2x$

$5=x$ $P=5\cdot10=50$

21. The measure of two angles of a regular hexagon are represented by the expressions $8x°$ and $(9x - 15)°$. Find the measure of an angle of the hexagon.

$8x=9x-15$ $m\angle=120°$

$15=x$

Section 1.6 Classify Polygons (continued)

Match the vocabulary with the correct definition. Write the correct letter in the blank.

2. J equiangular
3. H decagon
4. F octagon
5. E heptagon
6. G nonagon
7. C pentagon
8. I equilateral
9. B quadrilateral
10. D hexagon
11. A triangle
12. K regular polygon

A. 3 sided polygon.
B. 4 sided polygon.
C. 5 sided polygon.
D. 6 sided polygon.
E. 7 sided polygon.
F. 8 sided polygon.
G. 9 sided polygon.
H. 10 sided polygon.
I. All sides are congruent.
J. All angles are congruent.
K. A convex polygon that is both equiangular and equilateral.

13. A circle is NOT a polygon. **True** or **False** (circle one)
14. A heptagon has 7 sides. **True** or **False** (circle one)
15. A heptagon has 7 angles. **True** or **False** (circle one)
16. A pentagon has 4 angles. **True** or **False** (circle one)
17. A pentagon has 5 angles. **True** or **False** (circle one)
18. An octagon has 8 angles. **True** or **False** (circle one)

19. The lengths of two sides of a square are represented by the expressions $2x + 7$ and $7x - 8$. Find the length of a side of the square. Find the perimeter of the square.

$2x+7=7x-8$ side length $=2(3)+7=13$

$15=5x$

$3=x$ $P=4(13)=52$

Section 1.7 Find Perimeter, Circumference, and Area

1. You are planting grass on a square plot of land. The square plot is 12 ft on each side and it has a circular fountain in the center that has a radius of 4 ft. How much area do you need to cover with grass? How many feet of fencing would you need for the perimeter of the square plot of land?

12 [4]

$A_D - A_O = 144 - \pi(4^2)$

$A_{grass} = 93.7345\ ft^2$

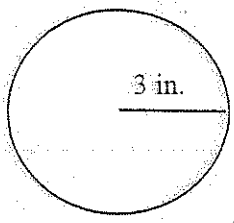
$P = 48\ ft$

2. A fence is to be built around a 22m by 63m lot. How many meters of fencing will be needed? If the material for the fence costs $15.00 per meter, what will the material for the fence cost?

22 / 63

$P = 170\ m$ $\quad \$ = 170 \cdot 15 = \$2550$

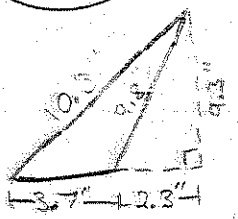
3. Find the circumference and area of the circle.



$C = 6\pi\ in$

$A = 9\pi\ in^2$

4. Find the area of the triangle.



$A = \frac{1}{2}(3.7)(9.3)$

$A = 17.205\ in^2$

5. You are cutting out a triangular shape. The triangle is 7 inches in height and has a base of 6 inches. What is the area of the triangular shape? $A = \frac{1}{2}(7)(6) = 21\ in^2$

6. Find the height of a triangle with the given information: $A = 20\ ft^2,\ b = 8\ ft,\ h = ?$

$A = \frac{1}{2}bh$

$20 = \frac{1}{2}(8)h \rightarrow 20 = 4h$

$h = 5\ ft$

7. Find the height of a triangle with the given information: $A = 150\ m^2$ $\quad b = 1500\ cm$ $\quad h = ?$

$b = 15\ m$

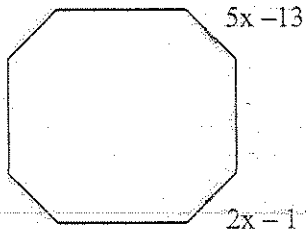
$A = \frac{1}{2}bh \rightarrow 150 = \frac{1}{2}(15)h$

$h = 20\ m$

8. Find the length of a rectangle with the given information: $A = 24\ ft^2,\ w = 6\ ft,\ l = ?$

$A = lw \rightarrow 24 = l \cdot 6 \Rightarrow l = 4\ ft$

9. Find the perimeter of the regular octagon



$5x - 13 = 2x - 1$

$3x = 12$

$x = 4$

$2(4) - 1 = 7$

$P = 8 \cdot 7 = 56$