Geometry A
Unit 1 Test Review

Name : Key
Date : _____ Period : _____

Geometry (A) Unit 1 Assessment Topic List

By the end of unit 1, you should be able to...

Section 1.1

- Name points, lines, planes, segments, rays, and opposite rays.
- Identify intersections of lines and planes.

Section 1.2

- Find length of a segment using the Ruler Postulate and the Segment Addition Postulate.
- Compare segments to identify congruent segments.

Section 1.3

- Use distance formula to find lengths of segments.
- Use the midpoint formula to find the midpoint of a segment in the coordinate plane, or identify a missing endpoint given the midpoint and one endpoint.
- Identify and use segment bisectors to solve problems.

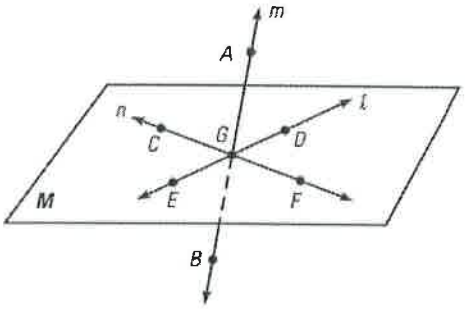
Section 1.4

- Name angles, and identify parts of angles.
- Find measures of angles using the Protractor Postulate, Angle Addition Postulate.
- Classify angles by their measure.
- Identify congruent angles, and use angle bisectors to find measures of angles.

Section 1.5

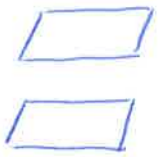
- Find measures of complementary and supplementary angles
- Use vertical angle theorem and linear pair postulate to find measures of angles

Use the drawing below for #1-7. Use proper notation! (Section 1.1)



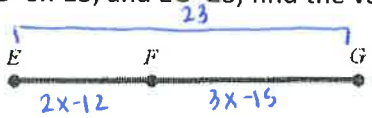
1. Give two other names for $\overleftrightarrow{AB}$. $\overleftrightarrow{AG}, \overleftrightarrow{BA}, \overleftrightarrow{GA}, \overleftrightarrow{GB}, \overleftrightarrow{BG}$, line m

2. Name a line segment found in the sketch. Then state another name for it.
   $\overline{AG}, \overline{GA}$ or $\overline{ED}, \overline{DE}$ (many possibilities)
3. Name all rays with endpoint G.
   $\overrightarrow{GA}, \overrightarrow{GD}, \overrightarrow{GF}, \overrightarrow{GB}, \overrightarrow{GE}, \overrightarrow{GC}$
4. Name the intersection of line m and the plane M.
   point G
5. Is it possible for two different planes to intersect in a line? If yes, give a real-world example.
   Yes, a floor and a wall; a building & the ground outside
6. Name three points that are coplanar.
   G,D,F or G,C,E or E,D,F (many possibilities)
7. Name three points that are collinear.
   G,C,F or E,G,D or A,G,B
8. Draw a sketch showing a line intersecting two planes which do not intersect.



(think of these as 2 pieces of paper on top of each other but not touching)

9. If EF=2x-12, FG=3x-15, and EG=23, find the values of x, EF and FG. The drawing is not to scale. (Sect 1.2)



$2x-12+3x-15=23$

$5x-27=23$

$5x=50$

$\boxed{x=10}$

$EF=2(10)-12$

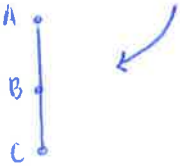
$\boxed{EF=8}$

$FG=3(10)-15$

$\boxed{FG=15}$

10. A climber uses a rope to descend a vertical cliff. Let A represent the point where the rope is secured at the top of the cliff, let B represent the climber's position and let C represent the point where the rope is secured at the bottom of the cliff. (Sect 1.2)

    a. Draw and label a line segment that represents the situation.



    b. Write the equation using the segment addition postulate.

    $AB+BC=AC$

    c. If AC is 52 feet and AB is 31 feet, how much farther must the climber descend to reach the bottom of the cliff.

    $31+BC=52$

    $\boxed{BC=21 \text{ ft}}$

11. Given that the endpoints of $\overline{AB}$ are A(7, 8) and B (4, 2), answer the following: (Sect 1.3)

$x_1\ y_1$ $x_2\ y_2$

a) Find the coordinates of the midpoint.

$M = \left(\frac{7+4}{2}, \frac{8+2}{2}\right) = \left(\frac{11}{2}, \frac{10}{2}\right) = \boxed{(5.5, 5)}$

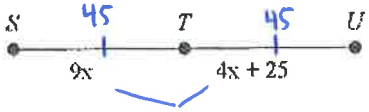
b) What is the length of $\overline{AB}$? (Round answer to nearest tenth).

$AB = \sqrt{(4-7)^2+(2-8)^2} = \sqrt{(-3)^2+(-6)^2} = \sqrt{9+36} = \sqrt{45} \approx \boxed{6.7}$

12. The midpoint of $\overline{MN}$ is P(5,5). One of the endpoints is M(-4,2). Find the coordinate of endpoint N. (Sect 1.3)

See last page for solution

13. If T is the midpoint of $\overline{SU}$, find the values of x and SU. (Sect 1.3)



both sides are equal

$9x = 4x + 25$

$5x = 25$

$\boxed{x = 5}$

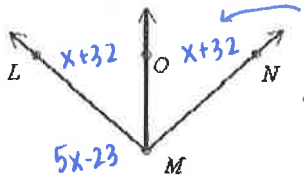
$ST = 9(5) = 45$

$TU = 4(5) + 25 = 45$

$\boxed{SU = 45 + 45 = 90}$

14. $\overrightarrow{MO}$ bisects ∠LMN, m∠LMN = 5x-23, m∠LMO = x + 32. Find m∠NMO. The diagram is not to scale.

Hint: Think about what it means to bisect an angle. If m∠LMO = x + 32, then what is m∠NMO?



If the angle is bisected, this side has to be the same

$x + 32 + x + 32 = 5x - 23$

$2x + 64 = 5x - 23$

$64 = 3x - 23$

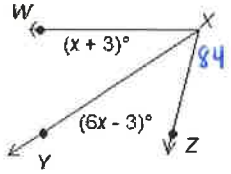
$87 = 3x$

$\boxed{x = 29}$

$m\angle NMO = 29 + 32$

$\boxed{m\angle NMO = 61°}$

15. Given m∠WXZ=84°, find m∠YXZ. (Sect 1.4)



$x + 3 + 6x - 3 = 84$

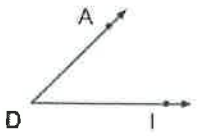
$7x = 84$

$\boxed{x = 12}$

$m\angle YXZ = 6(12) - 3$

$\boxed{m\angle YXZ = 69°}$

16a. Write 3 names for the angle shown (sect 1.4)

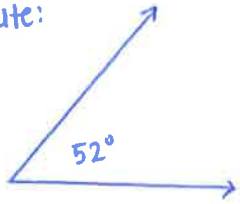


∠ADI, ∠IDA, ∠D

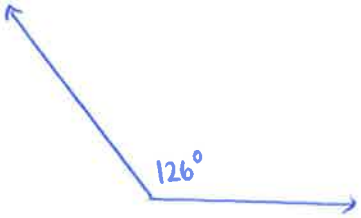
vertex has to be in the middle

16b. Draw and measure an example of an acute angle, obtuse angle, straight angle, and right angle.

acute:



obtuse:



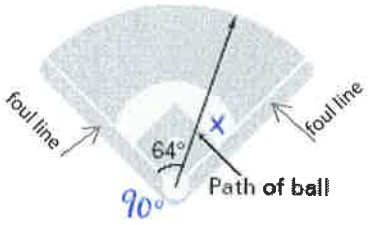
right:

straight:

17. The foul lines of a baseball field intersect at home plate to form a right angle. You hit a baseball whose path forms an angle of 64° with the third base foul line (see figure at right). What is the angle between the first base foul line and the path of the baseball? (Sect 1.4)

$x + 64 = 90$

$x = 26°$



18. If $\angle A$ and $\angle B$ are complementary and $m\angle A = 52°$, what is the $m\angle B$?

$m\angle A + m\angle B = 90$

$52 + m\angle B = 90$

$m\angle B = 38°$

19. If $\angle J$ and $\angle K$ are supplementary and $m\angle J = 52°$, what is the $m\angle K$?

$m\angle J + m\angle K = 180$

$52 + m\angle K = 180$

$m\angle K = 128°$

20. If ∠A and ∠B are complementary angles, m∠A = (3x – 10)° and m∠B =(x + 8)°, what is m∠A?

$m\angle A + m\angle B = 90$

$3x - 10 + x + 8 = 90$

$4x - 2 = 90$

$4x = 92$

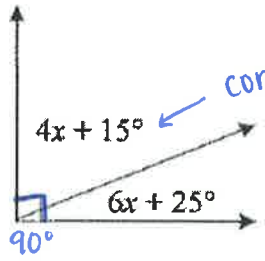
$x = 23$

$m\angle A = 3(23) - 10$

$m\angle A = 59°$

Using the diagrams below, please solve for x.

21.



complementary

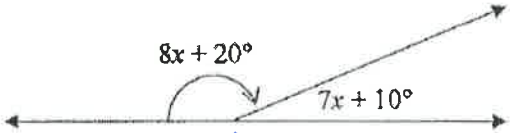
$4x+15+6x+25=90$

$10x+40=90$

$10x=50$

$\boxed{x=5}$

22.



↑ Linear pair (supplementary)

$8x+20+7x+10=180$

$15x+30=180$

$15x=150$

$\boxed{x=10}$

23. Use the diagram below to complete the following:

a. Name two acute vertical angles.

∠EKH and ∠FKG

b. Name two obtuse vertical angles.

∠EKF and ∠HKG

c. Name a linear pair.

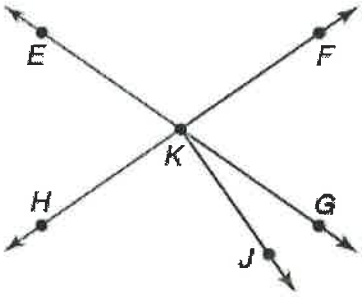
∠EKF and ∠FKG or ∠HKE and ∠EKF

d. Name two acute adjacent angles.

∠GKJ and ∠JKH or ∠GKJ and ∠GKF

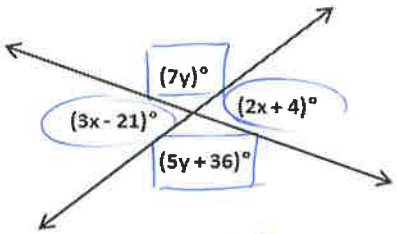
e. Name an angle supplementary to ∠FKG.

∠EKF or ∠GKH



Given the diagrams below, please solve for x and y.

24.



(vertical angles)

$3x-21=2x+4$

$x-21=4$

$\boxed{x=25}$

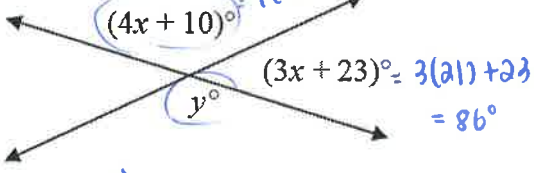
(vertical angles)

$7y=5y+36$

$2y=36$

$\boxed{y=18}$

25.



$4(21)+10=94°$

$3(21)+23=86°$

(linear pair)

$4x+10+3x+23=180$

$7x+33=180$

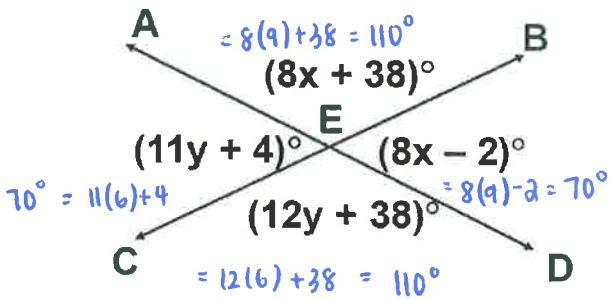
$7x=147$

$\boxed{x=21}$

↗ substitute in to your angles

$\boxed{94=y}$ (vertical angles)

26.



$8x+38+8x-2=180$ (linear pair)

$16x+36=180$

$16x=144$

$\boxed{x=9}$

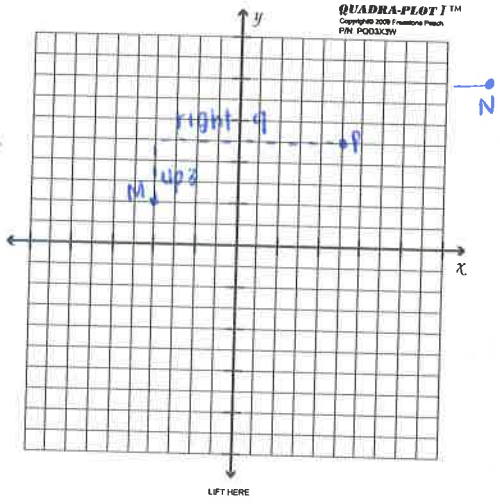
$11y+4+12y+38=180$ (linear pair)

$23y+42=180$

$23y=138$

$\boxed{y=6}$

(12)



From endpoint M to midpoint P:

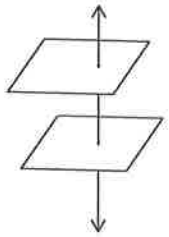
up 3 units, right 9 units

→ Repeat pattern from P to find N

$\boxed{(14,8)}$

Unit 1 Review Packet Answers

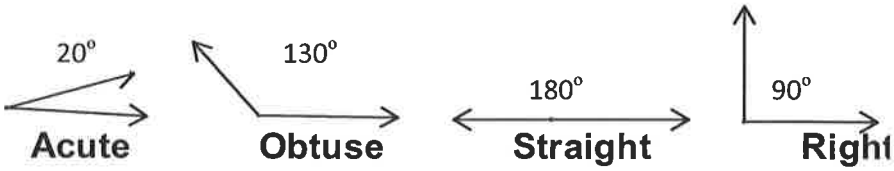
1) Possible answers include: $\overleftrightarrow{BA}$, $\overleftrightarrow{BG}$, line *m* etc.
2) Possible answers include: $\overline{GD}$, $\overline{DG}$ or $\overline{AB}$, $\overline{BA}$ etc.
3) $\overrightarrow{GA}$, $\overrightarrow{GD}$, $\overrightarrow{GF}$, $\overrightarrow{GE}$, $\overrightarrow{GC}$, and $\overrightarrow{GB}$
4) G
5) Yes, 2 planes could be the wall with the floor. Or two walls next to each other etc.
6) Possible answers include: C,G,E or D,E,F
7) Possible answers include: C,G,F or E,G,D
8) See sketch to the right →

8) 

9) x = 10. EF = 8, FG = 15
10) AB + BC= AC 21 ft
11) M(5.5,5), AB ≈ 6.7
12) (14,8)

(If you got (-13,-1) then you used the wrong midpoint...like I did originally by accident ☺-mm)

13) x = 5, SU = 90
14) x = 29, 61°
15) x = 12, 69°
16) ∠ADI, ∠IDA and ∠D (measures may vary)



17) 26°
18) $m\angle B = 38°$
19) $m\angle K = 128°$
20) $m\angle A = 59°$
21) $x = 5$
22) $x = 10$
23) a) ∠*EKH* & ∠*FKG*
    b) ∠*EKF* & ∠*HKG*
    c) ∠*HKE* & ∠*EKF* , ∠*HKG* & ∠*KGF* , ∠*HKJ* & ∠*JKF* , ∠*EKF* & ∠*FKG*
    d) ∠*FKG* & ∠*GKJ*
    e) ∠*EKF* , ∠*GKH*
24) $x = 25,\ y = 18$
25) $x = 21,\ y = 94$
26) $x = 9,\ y = 6$