

Geometry  
Midterm Exam Review

Name \_\_\_\_\_  
Date \_\_\_\_\_ Period \_\_\_\_\_

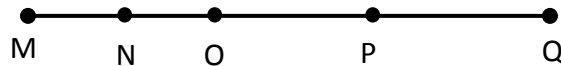
Chapter 1

1. Determine the next number in the sequence.

a) 0, 2, 6, 12 ...

b) -2, 4, 16 ...

2. Use the diagram below where  $MQ = 30$ ,  $MN = 5$ ,  $MN = NO$ , and  $OP = PQ$ .



a) Find OQ.

b) Find PQ.

c) Find NO.

d) Find NP.

e) Which of the statements below are not true.

i)  $NP = MN + PQ$     ii)  $MP = OQ$     iii)  $NQ = MP$     iv)  $MO = PQ$     v)  $MQ = PQ \cdot 3$

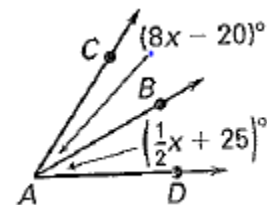
3. Point H is between G and I.

a) Draw a diagram and write a segment addition equation to represent the situation.

b) If  $GH = 8x + 7$ ,  $HI = 3x - 2$ , and  $GI = 38$ , solve for x. Show your work or receive no credit.

4. Find the midpoint of a segment with endpoints  $A(-7, 3)$  and  $B(3, -3)$

5.  $\overrightarrow{AB}$  bisects  $\angle CAD$ . Find the value of x.



6. Two angles are supplementary. One angle has a measure that is five less than four times the other. What is the measure of the larger angle? Set up an equation and show your work.
7. Two angles are complementary. One angle has a measure that is twice the other angle. What is the measure of the smaller angle? Set up an equation and show your work.
8. Use the points  $P(-2, 2)$ ,  $Q(1, -3)$ ,  $R(2, 1)$ , to determine which segments (if any) are congruent.
9. If  $\angle 1$  and  $\angle 2$  are complementary and  $m\angle 1 = 49^\circ$ , and  $m\angle 2 = (3x + 8)^\circ$ , then what is the value of  $x$ ?
10. Find the length of  $\overline{LM}$  if  $LN$  is 62,  $MN$  is 34, and  $M$  is **between**  $L$  and  $N$ .
11.  $W$  is between  $V$  and  $Y$ ,  $X$  is between  $W$  and  $Y$ ,  $Y$  is between  $W$  and  $Z$ .  $VZ = 76$ ,  $WY = 36$ ,  $WX = XY = YZ$ . What is the length of  $VW$ ?

## Chapter 2

12. What is the inverse of "if water is ice, then the water's temperature is  $32^\circ\text{F}$ ?"

13. Write the converse, inverse, and contrapositive of ***“If you are hungry, then you did not eat lunch”***.
14. What is the contrapositive of “If  $x = 3$ , then  $5x - 2 = 13$ ?”
15. Use the conditional statement ***“If an angle is acute, then the angle measures  $72^\circ$ ”*** to decide which of the following are true.
- I. The statement is true.
  - II. The converse of the statement is true.
  - III. The contrapositive of the statement is true.
- a) I only      b) II only      c) III only      d) I and II      e) I and III.
16. The statement  $\sim p \rightarrow \sim r$  could be \_\_\_\_\_. (Circle all that apply)
- a) the inverse of  $r \rightarrow p$
  - b) the converse of  $\sim r \rightarrow \sim p$
  - c) the contrapositive of  $r \rightarrow p$
  - d) the inverse of  $p \rightarrow r$
  - e) the contrapositive of  $\sim r \rightarrow \sim p$
17. Which property matches the conditional statement ***“If  $AB = BC$  and  $BC = CD$ , then  $AB = CD$ ”***.
18. Solve  $5x = -10$ , then state the property that applies to the required step.
19. Which property matches the conditional statement ***“If  $XY + AB = 15$  and  $XY = 5$ , then  $AB = 10$ ”***.
20.  $\overleftrightarrow{AM}$  and  $\overleftrightarrow{MP}$  intersect at \_\_\_\_\_?
21. Consider the Conditional statement: ***If  $x > 23$ , then  $x > 27$ .***
- Is this statement true? \_\_\_\_\_ Is the Converse true? \_\_\_\_\_ If Conditional and Converse are both true, then write the Biconditional. If one is false, the write a counterexample.

22. Consider the Conditional Statement: If today is Thursday, then tomorrow is Friday.  
Identify the following:

**Hypothesis:**

**Conclusion:**

**Converse:**

**Inverse:**

**Contrapositive:**

**Biconditional:**

23. Sketch the following: a) a Concave Octagon

b) a Convex Dodecagon

24. Use the Multiplication Property to complete, "If  $m\angle Q = 50^\circ$ , then  $\frac{1}{5}(m\angle Q) =$  \_\_\_\_\_.

25. Find the area of  $\triangle DEF$  with vertices  $D(-3, 4)$ ,  $E(-3, -2)$ , and  $F(4, -2)$ .

