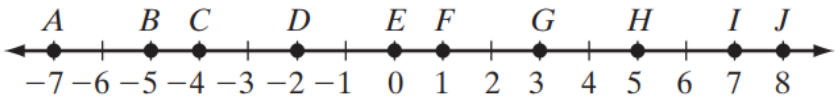
Geometry
HW #3 Segments: Length, Congruence and Midpoint

Name: _____
Period: ____

In 1-6, use the number line to find each measure.



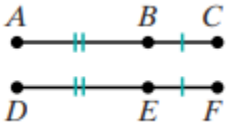
1. AB
2. BD
3. CD
4. FH
5. AJ
6. DG

7. What point is the midpoint of $\overline{BI}$? How do you know?
8. Show that $AD + DG = AG$.

9. What is the coordinate of the midpoint of $\overline{DE}$ if the coordinate of D is -4 and the coordinate of E is 10? Show a number line sketch.
10. S, M, and T are points on the number line. The coordinate of M is 2, and the coordinate of T is 14. What is the coordinate of S if M is the midpoint of $\overline{ST}$?
11. P, Q, and R are point on the number line. The coordinate of P is -10 , the coordinate of Q is 6, and the coordinate of R is 8.
    a) Does $PQ + QR = PR$?
    b) Is Q the midpoint of $\overline{PR}$? If not, what is the coordinate of the midpoint?
12. A, B, C are points are a number line such that B is the midpoint of $\overline{AC}$.
    a) If the coordinate of A is 35 and the coordinate of C is 75, what is the coordinate of B? Show a calculation that could be used to find the answer.
    b) If the coordinate of A is 20 and the coordinate of B is 35 what is the coordinate of C?

13. In the diagram, $QU = 120$, $SU = 50$, and $RS = ST = TU$. Find the indicated values.
    a) ST b) QS c) RT
    d) QR e) RU f) QT

14. The tick marks shown on the figures are a common way of indicating congruent segments.
    a) Make two congruence statements. (____ ≅ ____)
    b) Make two equality statements. (____ = ____)



15. Points D, E, and F are collinear. F is between D and E. DE is 40. FD is seven times FE. Find DF, FE, and FE. Show a drawing.

16. If $CA = 6(x-1)$, $AT = 3x+1$, and $CT = x+43$.
    Find x, CA, AT, and CT.

17. If $AM = MB$, does this necessarily mean that M is the midpoint of $\overline{AB}$? Explain why or why not. Draw a figure to support your answer. Compare with your partner and/or group in class.

Algebra Review:

18. Solve: $12 - 2(3x-4) = 2x - 4$
19. Simplify: $4\sqrt{27}$
20. If $x = -3$, $y = 6$ find the value of $\sqrt{x^2 + y^2}$