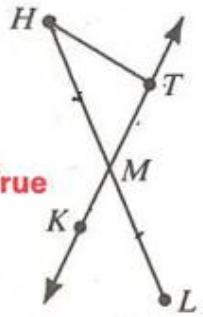
Homework #3
WE: Pages 15 - 16
#1 - 47 odd, 44 - 48 evens

Written Exercises

The numbers given are the coordinates of two points on a number line. State the distance between the points.

A 1. -6 and 9 **15** 2. -3 and -17 **14** 3. -1.2 and -5.7 **4.5** 4. -2.5 and 4.6 **7.1**

In the diagram, $\overline{HL}$ and $\overleftrightarrow{KT}$ intersect at the midpoint of $\overline{HL}$. Classify each statement as true or false.

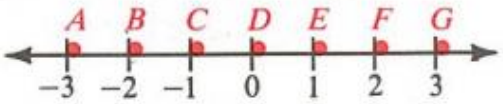


Exs. 5–18

5. $\overline{LM} \cong \overline{MH}$ **True**
6. KM must equal MT. **False**
7. $\overline{MT}$ bisects $\overline{LH}$. **True** **False**
8. $\overleftrightarrow{KT}$ is a bisector of $\overline{LH}$. **True**
9. $\overrightarrow{MT}$ and $\overrightarrow{TM}$ are opposite rays.
10. $\overrightarrow{MT}$ and $\overrightarrow{MK}$ are opposite rays. **True**
11. $\overleftrightarrow{LH}$ is the same as $\overline{HL}$. **False**
12. $\overrightarrow{KT}$ is the same as $\overrightarrow{KM}$. **True**
13. $\overleftrightarrow{KT}$ is the same as $\overleftrightarrow{KM}$. **True**
14. $\overline{KT}$ is the same as $\overline{KM}$. **False**
15. $HM + ML = HL$ **True**
16. $TM + MH = TH$ **False**
17. T is between H and M. **False**
18. M is between K and T. **True**

Name each of the following.

19. The point on $\overrightarrow{DA}$ whose distance from D is 2 **B**
20. The point on $\overrightarrow{DG}$ whose distance from D is 2 **F**
21. Two points whose distance from E is 2 **C, G**
22. The ray opposite to $\overrightarrow{BE}$ **$\overrightarrow{BA}$**
23. The midpoint of $\overline{BF}$ **D**
24. The coordinate of the midpoint of $\overline{BD}$ **−1**
25. The coordinate of the midpoint of $\overline{AE}$ **−1**
26. A segment congruent to $\overline{AF}$ **$\overline{BG}$**



Exs. 19–26

In Exercises 27–30 draw $\overline{CD}$ and $\overline{RS}$ so that the conditions are satisfied.

27. $\overline{CD}$ and $\overline{RS}$ intersect, but neither segment bisects the other.
28. $\overline{CD}$ and $\overline{RS}$ bisect each other.
29. $\overline{CD}$ bisects $\overline{RS}$, but $\overline{RS}$ does not bisect $\overline{CD}$.
30. $\overline{CD}$ and $\overline{RS}$ do not intersect, but $\overrightarrow{CD}$ and $\overrightarrow{RS}$ do intersect.

B 31. In the diagram, $\overline{PR} \cong \overline{RT}$, S is the midpoint of $\overline{RT}$, $QR = 4$, and $ST = 5$. Complete.

a. $RS =$? **5** b. $RT =$? **10**
c. $PR =$? **10** d. $PQ =$? **6**

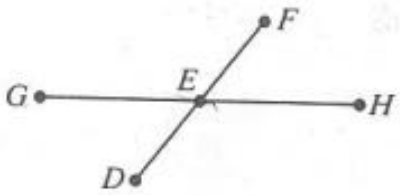
E is the midpoint of $\overline{DF}$. Find the value of x.

33. $DE = 5x + 3$, $EF = 33$ **$x = 6$**

34. $DE = 45$, $EF = 5x - 10$ **$x = 11$**

35. $DE = 3x$, $EF = x + 6$ **$x = 3$**

36. $DE = 2x - 3$, $EF = 5x - 24$ **$x = 7$**



Exs. 33–40

Find the value of y.

37. $GE = y$, $EH = y - 1$, $GH = 11$ **$y = 6$**

38. $GE = 3y$, $GH = 7y - 4$, $EH = 24$ **$y = 7$**

Find the value of z. Then find GE and EH and state whether E is the midpoint of $\overline{GH}$.

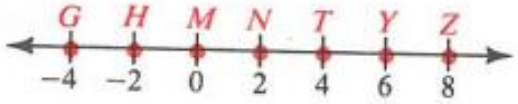
39. $GE = z + 2$, $GH = 20$, $EH = 2z - 6$ **$z = 8$; $GE = 10$; $EH = 10$; yes**

40. $GH = z + 6$, $EH = 2z - 4$, $GE = z$ **$z = 5$; $GE = 5$; $EH = 6$; no**

Name the graph of the given equation or inequality.

Example a. $x \geq 2$ b. $4 \leq x \leq 6$

Solution a. $\overrightarrow{NT}$ b. $\overline{TY}$



Exs. 41–45

41. $-2 \leq x \leq 2$ **$\overline{HN}$**

42. $x \leq 0$ **$\overrightarrow{MH}$ or $\overrightarrow{MG}$**

43. $|x| \leq 4$ **$\overline{GT}$**

44. $|x| \geq 0$ **Answers may vary; $\overleftrightarrow{GT}$**

45. $|x| = 0$ **M**

In Exercises 46 and 47 draw a diagram to illustrate your answer.

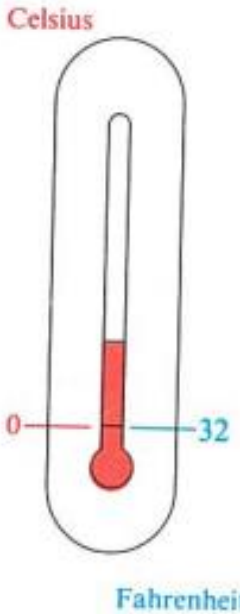
46. a. On $\overrightarrow{AB}$, how many points are there whose distance from point A is 3 cm? **1**

b. On $\overleftrightarrow{AB}$, how many points are there whose distance from point A is 3 cm? **2**

C 47. On $\overrightarrow{AB}$, how many points are there whose distance from point B is 3 cm? **2 if $AB \geq 3$ cm, 1 if $AB < 3$ cm**

48. The Ruler Postulate suggests that there are many ways to assign coordinates to a line. The Fahrenheit and Celsius temperature scales on a thermometer indicate two such ways of assigning coordinates. A Fahrenheit temperature of 32° corresponds to a Celsius temperature of 0°. The formula, or rule, for converting a Fahrenheit temperature F into a Celsius temperature C is

$$C = \frac{5}{9}(F - 32).$$



a. What Celsius temperatures correspond to Fahrenheit temperatures of 212° and 98.6°? **100°C; 37°C**

b. Solve the equation above for F to obtain a rule for converting Celsius temperatures to Fahrenheit temperatures.

c. What Fahrenheit temperatures correspond to Celsius temperatures of −40° and 2000°? **−40°F, 3632°F**

b. **$F = \frac{9}{5}C + 32$**