A#8 [1] p.14-15 CE #1-6, 11-12 WE #1-4, 5-29 odd
[2] p.15-16 WE #31-32, 36, 39-40, 46-47

Key

[1] p.14-15 CE #1-6, 11-12 WE #1-4, 5-29 odd

CE 1a. $\overline{PQ}$ Segment b. $\overrightarrow{PQ}$ Ray c. $\overleftrightarrow{PQ}$ Line d. PQ length

2. How many endpoints does a segment have? 2 a ray? 1 a line? None

3. Is $\overline{AB}$ the same as $\overline{BA}$? Yes

4. Is $\overrightarrow{AB}$ the same as $\overrightarrow{BA}$? No (Different initial point)

5. Is $\overleftrightarrow{AB}$ the same as $\overleftrightarrow{BA}$? Yes

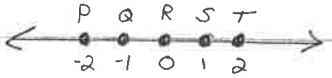
6. Is AB the same as BA? Yes

Exs. 3-6

11. Name the ray opposite to $\overrightarrow{SP}$. $\overrightarrow{ST}$

12. Name the midpoint of $\overline{PT}$. R

Exs. 11-12



WE 1. -6 and 9 2. -3 and -17 3. -1.2 and -5.7 4. -2.5 and 4.6

$9-(-6)$ $-3-(-17)$ $-1.2-(-5.7)$ $4.6-(-2.5)$

15 units 14 units 4.5 units 7.1 units

For #5-17 odd, $\overline{HL}$ and $\overleftrightarrow{KT}$ intersect at the midpoint of $\overline{HL}$.

5. $\overline{LM} \cong \overline{MH}$ True (Definition of midpoint)

7. $\overline{MT}$ bisects $\overline{LH}$ True (Definition of segment bisector)

9. $\overrightarrow{MT}$ and $\overrightarrow{TM}$ are opposite rays. False (Not the same initial point)

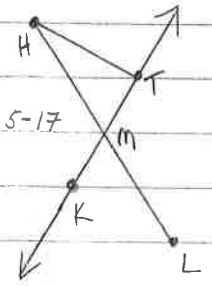
11. $\overleftrightarrow{LH}$ is the same a $\overline{HL}$. False (one line and one segment)

13. $\overleftrightarrow{KT}$ is the same as $\overleftrightarrow{KM}$. True

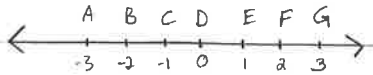
15. $HM + ML = HL$ True (M is between H and L → Segment Addition Postulate)

17. T is between H and M. False (T is not on $\overline{HM}$)

Exs. 5-17



19. The point on $\overrightarrow{DA}$ whose distance from D is 2. B



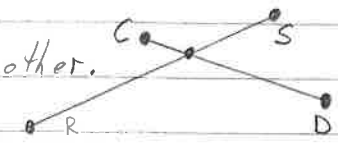
21. 2 points whose distance from E is 2. G and C

23. The midpoint of $\overline{BF}$. $\frac{-2+2}{2} = \frac{0}{2} = 0 \rightarrow$ D

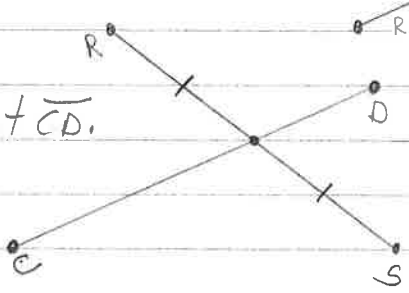
25. The coordinate of the midpoint of $\overline{AE}$. $\frac{-3+1}{2} = \frac{-2}{2} = -1$

Draw the following.

27. $\overline{CD}$ and $\overline{RS}$ intersect, but neither segment bisects the other.



29. $\overline{CD}$ bisects $\overline{RS}$, but $\overline{RS}$ does not bisect $\overline{CD}$.



[2] p. 15-16 WE # 31-32, 36, 39-40, 46-47 [Key]

31. Given: $\overline{PR} \cong \overline{ST}$, S is the midpoint of $\overline{RT}$,
$QR = 4$ and $ST = 5$.

a. $RS = ST$, $\boxed{RS = 5}$ [Midpoint Theorem]

b. $RT = RS + ST$ [Segment Addition Postulate]

$\boxed{RT = 10}$

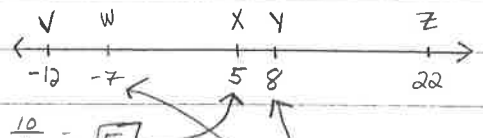
c. $PR = RT$, $\boxed{PR = 10}$ [Definition of $\cong$ segments]

d. $PQ + QR = PR$ [Segment Addition Postulate]

$PQ + 4 = 10$ [Substitution property of equality]

$\boxed{PQ = 6}$

32. Given: X is the midpoint of $\overline{VZ}$,
$VW = 5$ and $VY = 20$.



[1] The coordinate of X is $\frac{-12+22}{2} = \frac{10}{2} = \boxed{5}$

[2] $VZ = 22 - (-12) = 34$

$VX = \frac{1}{2} VZ$ [Midpoint Theorem]

$VX = 17$

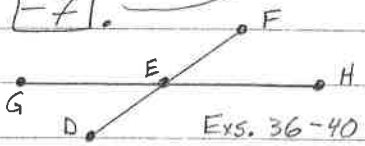
$VY = VX + XY$ [Segment Addition Postulate]

$20 = 17 + XY$

$XY = 3 \longrightarrow$ Therefore the coordinate of Y is $\boxed{8}$.

[3] Since $VW = 5$, the coordinate of W is $\boxed{-7}$.

For #36, 39-40, E is the midpoint of $\overline{DF}$.



Exs. 36-40

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

$DE = EF$ [Midpoint Theorem]

$2x - 3 = 5x - 24$

$3x = 21$

$\boxed{x = 7}$

39. $GE = z + 2$, $GH = 20$, $EH = 2z - 6$

$GE + EH = GH$ [Segment Addition Postulate]

$z + 2 + 2z - 6 = 20$

$3z = 24$

$\boxed{z = 8}$

$GE = 10$, $EH = 10$

E is the midpoint of $\overline{GH}$.

40. $GH = z + 6$, $EH = 2z - 4$, $GE = z$

$GE + EH = GH$ [Segment Addition Postulate]

$z + 2z - 4 = z + 6$

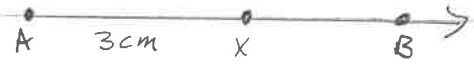
$2z = 10$

$\boxed{z = 5}$

$GE = 5$, $EH = 6$

E is not the midpoint of $\overline{GH}$.

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



1 point

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

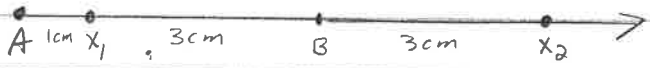
2 points

47. On $\overrightarrow{AB}$, how many points are there whose distance from point B is 3cm?

It depends on the distance from A to B. [AB]

Case 1

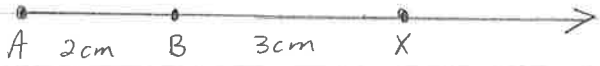
If $AB \geq 3cm$, there are 2 points.



[Example: AB = 4cm]

Case 2

If $AB < 3cm$, there is only 1 point.



[Example: AB = 2cm]