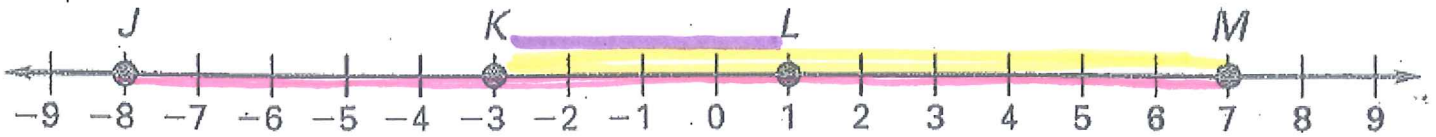


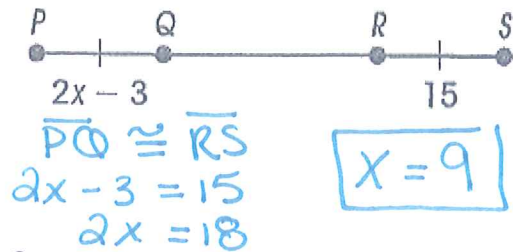
Segments Review Day 2- HW

Directions: Use the number line for questions 1-3 to determine lengths of segments.

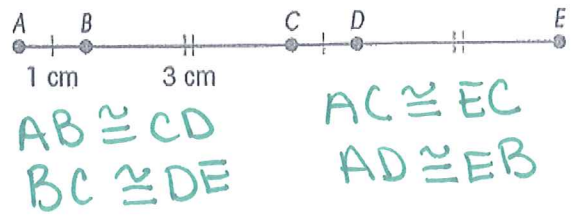


1. $\overline{KM} =$ 10 2. $\overline{JM} =$ 15 3. $\overline{LK} =$ 4

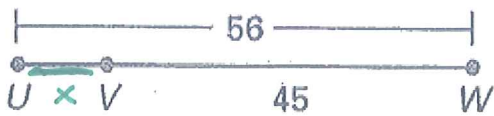
4. Find x .



5. List the pairs of congruent segments.

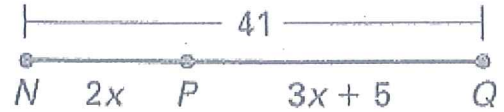


6. Find UV .



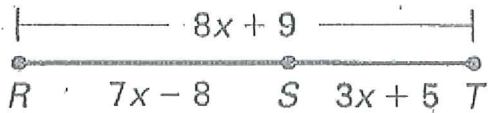
$UV + VW = UW$ Seg. addition
 $x + 45 = 56$
 $x = 11$
 $UV = 11$

7. Find PQ .



$NP + PQ = NQ$ segment addition
 $2x + 3x + 5 = 41$
 $5x + 5 = 41$
 $5x = 36$
 $x = 7.2$

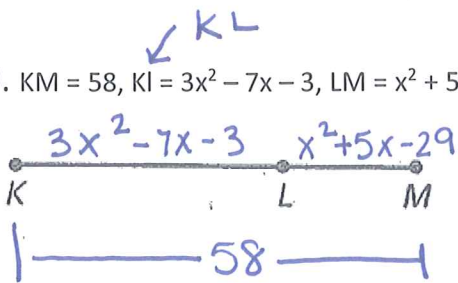
8. Find ST .



$RS + ST = RT$ Segment addition
 $7x - 8 + 3x + 5 = 8x + 9$
 $10x - 3 = 8x + 9$
 $2x = 12$
 $x = 6$
 $ST = 3(6) + 5$
 $ST = 23$

$PQ = 3x + 5$
 $PQ = 3(7.2) + 5$
 $PQ = 26.2$

9. $KM = 58$, $KL = 3x^2 - 7x - 3$, $LM = x^2 + 5x - 29$, find LM .



$KL + LM = KM$ Segment addition

$$3x^2 - 7x - 3 + x^2 + 5x - 29 = 58$$

$$4x^2 - 2x - 32 = 58$$

$$4x^2 - 2x - 90 = 0$$

$$2(2x^2 - x - 45) = 0$$

$$2(x - 10)(x + 9) = 0$$

$$2(x - 5)(2x + 9) = 0$$

$$x - 5 = 0 \quad 2x + 9 = 0$$

$$x = 5 \text{ or } x = -\frac{9}{2}$$

$$a \cdot c = -90$$

$$-10 \cdot 9 = -90$$

$$-10 + 9 = -1$$

check $x = 5$

$$3(5)^2 - 7(5) - 3 + 5^2 + 5(5) - 29 = ?$$

$$37 + 21 = 58 \checkmark$$

check $x = -\frac{9}{2} = -4.5$

$$3(-4.5)^2 - 7(-4.5) - 3 + (-4.5)^2 + 5(-4.5) - 29 = ?$$

$$89.25 + 31.25 = 120.5 \neq 58$$

can't have a neg. distance

(After showing ALL work to the right)

GCF

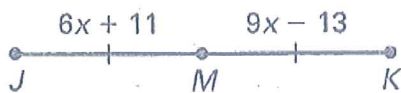
$$x = 5 \text{ and}$$

$$LM = 5^2 + 5(5) - 29$$

$$LM = 21 \text{ units}$$

Midpoints with Algebra: In each diagram, M is the midpoint of the segment. Find the indicated length.

10. Find JK .



$JM \cong MK$ def of midpoint

$$6x + 11 = 9x - 13$$

$$24 = 3x$$

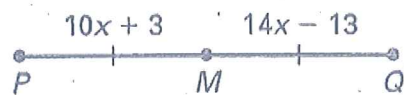
$$8 = x$$

ALL of JK

$$JK = 6(8) + 11 + 9(8) - 13$$

$$JK = 118$$

11. Find PQ .



$PM \cong MQ$ def of midpoint

$$10x + 3 = 14x - 13$$

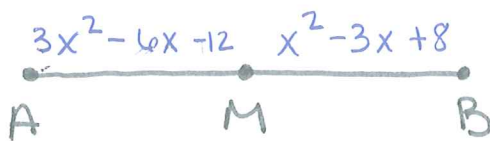
$$16 = 4x$$

$$4 = x$$

$$PQ = 10(4) + 3 + 14(4) - 13$$

$$PQ = 86$$

12. Point M is the midpoint of segment AB. $AM = 3x^2 - 6x - 12$ and $MB = x^2 - 3x + 8$. Find x and AB .



$AM \cong MB$ def of midpoint

$$3x^2 - 6x - 12 = x^2 - 3x + 8$$

$$-x^2 + 3x - 8 - x^2 + 3x - 8$$

$$2x^2 - 3x - 20 = 0$$

$$(x - 8)(x + 5) = 0$$

$$(x - 4)(2x + 5) = 0$$

$$x = 4$$

$$x = -\frac{5}{2}$$

$$2 \cdot -20 = -40$$

$$-8 \cdot 5 = -40$$

$$-8 + 5 = -3$$

check your work!

check $x = 4$

$$3(4)^2 - 6(4) - 12 = (4)^2 - 3(4) + 8$$

$$12 = 12 \checkmark$$

$\therefore x = 4$ and

$$AB = 12 + 12 \quad AB = 24$$

check $x = -\frac{5}{2}$

$$3(-\frac{5}{2})^2 - 6(-\frac{5}{2}) - 12 = (-\frac{5}{2})^2 - 3(-\frac{5}{2}) + 8$$

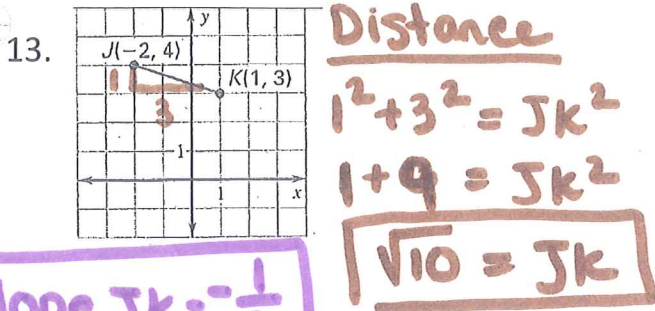
$$21.75 = 21.75 \checkmark$$

$$\therefore x = -\frac{5}{2} \text{ and } AB = 21.75 + 21.75$$

$$AB = 43.5$$

REVIEW:

Find the slope, distance and midpoint for the following segments.



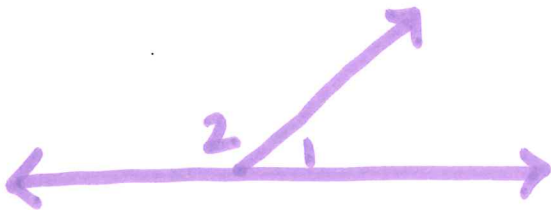
Slope JK = $-\frac{1}{3}$

midpoint = $(\frac{-2+1}{2}, \frac{4+3}{2})$

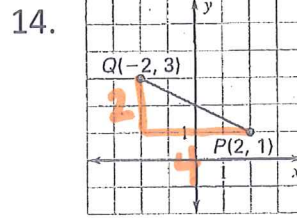
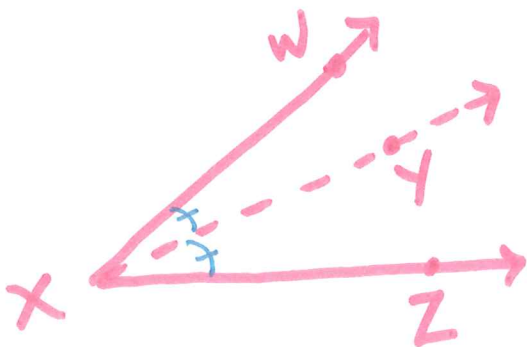
Midpoint = $(-\frac{1}{2}, \frac{7}{2})$

Drawing Figures:

15. $\angle 1$ and $\angle 2$ are linear pairs.



17. \overline{XY} is an angle bisector of $\angle WXZ$.



Slope QP = $-\frac{2}{4}$

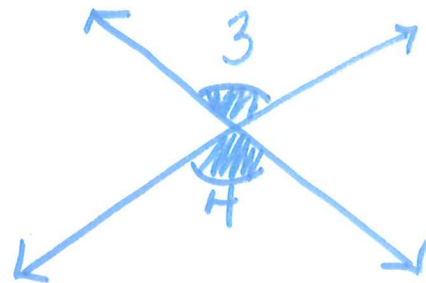
Slope QP = $-\frac{1}{2}$

midpoint = $(\frac{-2+2}{2}, \frac{3+1}{2})$

midpoint = $(0, 2)$

Distance
 $2^2 + 4^2 = QP^2$
 $\sqrt{20} = QP$
 $\sqrt{4 \cdot 5} = 2\sqrt{5}$
QP = $2\sqrt{5}$

16. $\angle 3$ and $\angle 4$ are vertical angles.



18. $\ell \parallel m$ and ℓ and m are \perp to n .

