3. Find AB ← distance from A to B

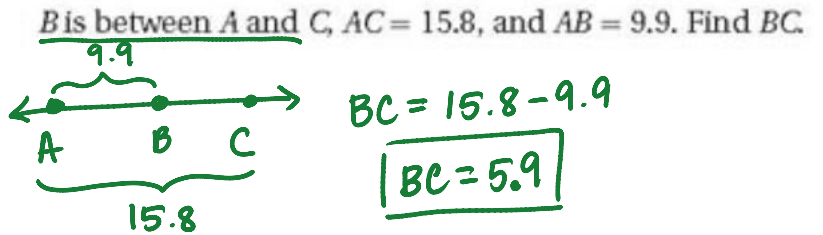**6.**

B is between A and C, $AC = 15.8$, and $AB = 9.9$. Find BC.

$$AB = |1 + (+2.5)|$$

$$AB = |3.5|$$

$$\boxed{AB = 3.5}$$

9.9

15.8
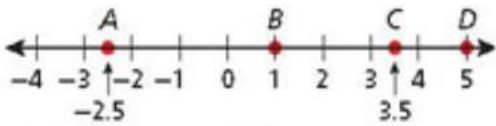
$$BC = 15.8 - 9.9$$

$$\boxed{BC = 5.9}$$

7. Find $\boxed{MP.}$

12
3(4)
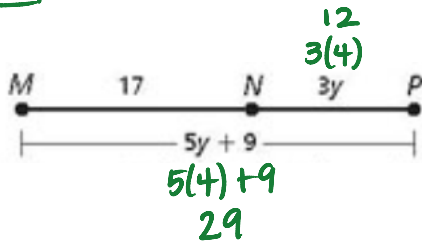
$$MN + NP = MP$$

$$17 + 3y = 5y + 9$$
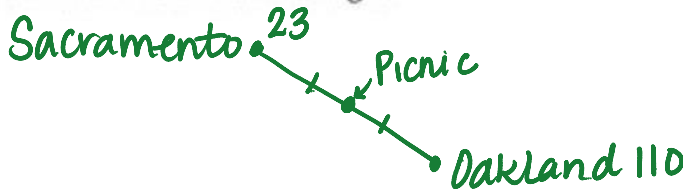
5(4) + 9
29

$$-2y = -8$$

$$y = 4 \quad \text{So} \quad \boxed{MP = 29}$$

8. **Travel** If a picnic area is located at the midpoint between Sacramento and Oakland, find the distance to the picnic area from the road sign.

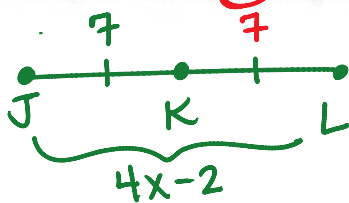| Roseville	5
Sacramento	23
Oakland	110

Sacramento • 23

× Picnic

• Oakland 110

1st $110 - 23 = 87$ miles

2nd $\dfrac{87}{2} = \boxed{43.5 \text{ miles from both Signs}}$

9. **Multi-Step** K is the midpoint of $\overline{JL}$, $JL = 4x - 2$, and $JK = 7$. Find x, KL, and JL.

7   7

J   K   L

4x - 2

$$JK + KL = JL$$

$$7 + 7 = 4x - 2$$

$$14 = 4x - 2$$

$$16 = 4x$$

$$\boxed{4 = x}$$

$$\boxed{KL = 7}$$

$$JL = 4(4) - 2$$

$$\boxed{JL = 14}$$

10. E bisects $\overline{DF}$, $DE = 2y$, and $EF = 8y - 3$. Find DE, EF, and DF.

2y   8y-3
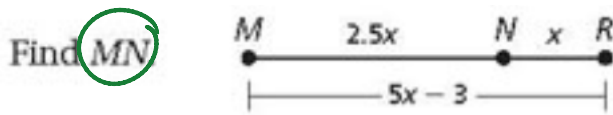
D   E   F

$$DE = EF$$

$$2y = 8y - 3$$

$$-6y = -3$$

$$y = \tfrac{1}{2}$$

$$DE = 2\left(\tfrac{1}{2}\right) = 1$$

$$EF = 8\left(\tfrac{1}{2}\right) - 3 = 1$$

$$DF = 1 + 1 = 2$$

15. Find MN

M   2.5x   N x R

5x − 3

* cannot assume that N is the midpt, so you cannot set MN = NR
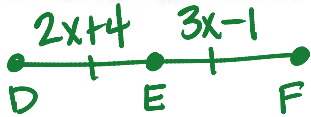* Instead, MN + NR = MR
$$2.5x + x = 5x - 3$$
$$3.5x = 5x - 3$$
$$-1.5x = -3$$
$$x = 2, \text{ therefore } MN = 2.5(2) = 5$$

MN = 5

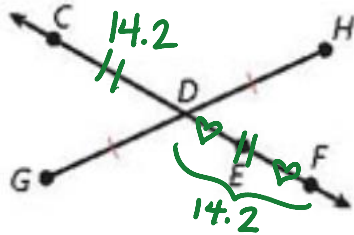**17.** **Multi-Step** E is the midpoint of $\overline{DF}$, DE = 2x + 4, and EF = 3x − 1. Find DE, EF, and DF.

2x+4   3x−1
D   E   F

DE = EF
$$2x+4 = 3x-1$$
$$-x = -5$$
$$x = 5$$

DE = 2(5)+4 = 14
EF = 3(5)−1 = 14
DF = 14+14 = 28

21. Use the diagram below. If $\overline{CD} \cong \overline{DF}$, E bisects $\overline{DF}$, and CD = 14.2. Find EF.

C 14.2   H
D
G
E   F
14.2

EF = 7.1

25. True or False? If M is between A and B, then M bisects $\overline{AB}$.
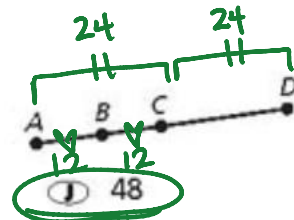Draw a picture to support your answer.

A   M   B

just because M is between A and B does not mean that it has to be directly in the middle

37. C is the midpoint of $\overline{AD}$. B is the midpoint of $\overline{AC}$. BC = 12. What is the length of $\overline{AD}$?
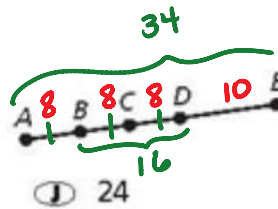
Ⓕ 12   Ⓖ 24   Ⓗ 36   Ⓙ 48

24   24
A B C   D
12 12

39. A, B, C, D, and E are collinear points. AE = 34, BD = 16, and AB = BC = CD. What is the length of $\overline{CE}$?

Ⓕ 10   Ⓖ 16   Ⓗ 18   Ⓙ 24

34
A 8 B 8 C 8 D 10 E
16

AE = 34−24 = 10
CE = 8+10
CE = 18