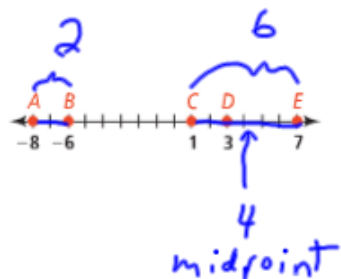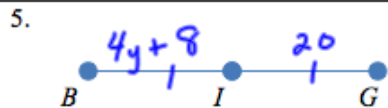# 1.2 Practice Solutions

For questions 1-4, use the picture on the right

1. Find AB = **2**

2. Find EC = **6**

3. What is the midpoint of $\overline{CE}$? **4**

4. Is $\overline{BD} \cong \overline{CA}$? Explain why or why not? **YES**
   $BD = 9$ $CA = 9$ Both are 9 units long!

number line: A B (−8 −6) C D E (1 3 7); labeled 2, 6, 4 midpoint

---

Label the picture, then find the length of the given segment.

5.

$4y+8$ 20

B   I   G

I is the midpoint of $\overline{BG}$
$BI = 4y + 8$
$IG = 20$
Find $\overline{BG}$

$4y + 8 = 20$
$\quad -8 \quad -8$
$\dfrac{4y}{4} = \dfrac{12}{4}$
$y = 3$

6.

$5x+3$ $7x-9$

F   U   N
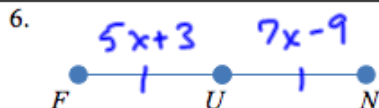
$\overline{FU} \cong \overline{UN}$
$FU = 5x + 3$
$UN = 7x - 9$
Find FN

$5x + 3 = 7x - 9$
$-5x \quad -5x$
$3 = 2x - 9$
$+9 \qquad +9$
$\dfrac{12}{2} = \dfrac{2x}{2}$
$6 = x$

$5x + 3$
$5(6) + 3$
$30 + 3$
33
$\boxed{FU = 33}$
$UN = 33$

$\boxed{5^\circ \; FN = 66}$

7.

$3x-9$ $2x+5$

Y   E   A   H
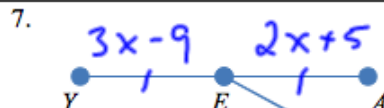
$\overline{EH}$ bisects $\overline{YA}$
$EA = 2x + 5$
$YE = 3x - 9$
Find YA

$3x - 9 = 2x + 5$
$-2x \qquad -2x$
$1x - 9 = 5$
$+9 \quad +9$
$x = 14$

$Y\overline{E} = 3x - 9$
$3(14) - 9$
$42 - 9$
$Y\overline{E} = 33$
$EA = 33$

$\boxed{YA = 66}$

For questions 8 and 9, use the picture on the right

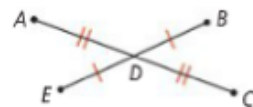**11.** If $AD = 12$ and $AC = 4y - 36$, find the value of y. Then find AC and DC.

$AD = DC$
So $AC = AD + DC$
$AC = 12 + 12$
$\boxed{AC = 24}$
$\boxed{DC = 12}$

$AC = 4y - 36$
$24 = 4y - 36$
$+36 \qquad +36$
$\dfrac{60}{4} = \dfrac{4y}{4}$
$\boxed{15 = y}$

12. If $ED = x + 4$ and $DB = 3x - 8$, find ED, DB, and EB.

$ED = DB$
$x + 4 = 3x - 8$
$-x \qquad -x$
$4 = 2x - 8$
$+8 \qquad +8$
$\dfrac{12}{2} = \dfrac{2x}{2}$
$6 = x$

$ED = x + 4$
$ED = 6 + 4$
$\boxed{ED = 10}$
$\boxed{DB = 10}$

$EB = ED + DB$
$\boxed{EB = 20}$

Figure: two lines crossing through point D, with A and E on left, B and C on right.

Find the midpoint and distance given the two endpoints

13.

(12,15) and (-8, -22)

$M: \left(\frac{12+^-8}{2}, \frac{15+^-22}{2}\right)$

$M = \left(\frac{4}{2}, \frac{-7}{2}\right)$

$M = \left(2, -\frac{7}{2}\right)$

$d = \sqrt{(^-8-12)^2 + (^-22-15)^2}$

$d = \sqrt{(^-20)^2 + (-37)^2}$

$d = \sqrt{400 + 1369}$

$d = \sqrt{1769} \approx 42.06$

14.

(-3,5) and (14, 28)
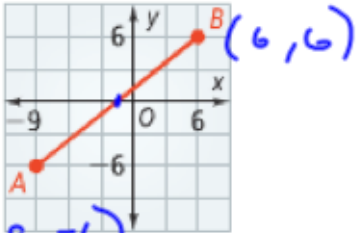
$M = \left(\frac{-3+14}{2}, \frac{5+28}{2}\right)$

$M = \left(\frac{11}{2}, \frac{33}{2}\right)$

$d = \sqrt{(14-^-3)^2 + (28-5)^2}$

$d = \sqrt{17^2 + 23^2}$

$d = \sqrt{289 + 529}$

$d = \sqrt{818} \approx 28.6$

15.

B (6,6)

(-9,-6)

$M = \left(\frac{-9+6}{2}, \frac{-6+6}{2}\right)$

$= \left(\frac{-3}{2}, \frac{0}{2}\right)$

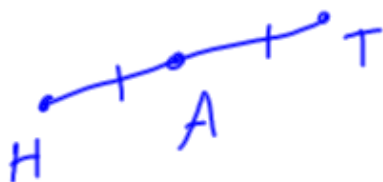$M = \left(-\frac{3}{2}, 0\right)$

$\sqrt{(6-^-9)^2 + (6-^-6)^2}$

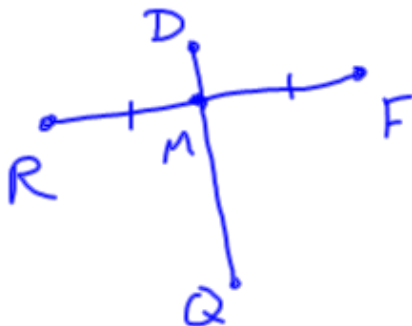$\sqrt{15^2 + 12^2}$

$\sqrt{225 + 144}$

$\sqrt{369} \approx 19.21$

Draw and label a picture for each of the following. Indicate what line segments are congruent (if any).

16. A is the midpoint of $\overline{HT}$

17. $\overline{DQ}$ bisects $\overline{RF}$ at M

18. $\overline{TM}$ bisects $\overline{WE}$ at T