Name: _____

Date: _____ Period: ____

Suppose $\overline{RS}$ is congruent to $\overline{MN}$. For each of the set of lengths, solve for x, and find the length of each segment.
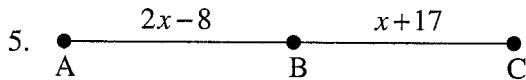
1. RS = 3x + 17, MN = 7x – 15
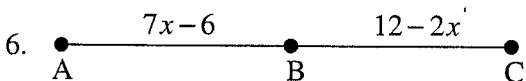
2. RS = x + 10, MN = 2x + 4

3. RS = 3x – 2, MN = x + 6

4. RS = 5x – 10, MN = 2x + 20

Suppose $\overline{AB}$ is congruent to $\overline{BC}$. Solve for x, and find the length of $\overline{AB}$, $\overline{BC}$ and $\overline{AC}$.
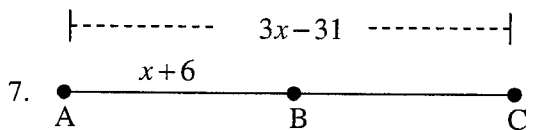
5.

$$2x-8 \qquad x+17$$

A —————— B —————— C

X = _____   AB = _____

BC = _____   AC = _____

6.

$$7x-6 \qquad 12-2x$$

A —————— B —————— C

X = _____   AB = _____

BC = _____   AC = _____

7.

$$\vdash --------- \ 3x-31 \ ----------\dashv$$

$$x+6$$

A —————— B —————— C

X = _____   AB = _____

BC = _____   AC = _____

8.

$$5(2x+2)$$

$$3(3x-1)$$

A — B — C
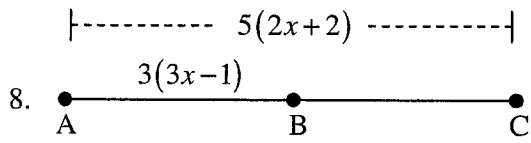
X = _____   AB = _____

BC = _____   AC = _____

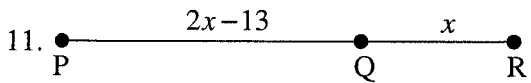**Suppose that PR = 47. Solve for x and find the length of segments PQ and QR.**

9.

$$4x-1 \qquad 3x-1$$

P — Q — R

X = _____

PQ = _____   QR = _____

10.

$$2x+7 \qquad 2x$$

P — Q — R

X = _____

PQ = _____   QR = _____

11.

$$2x-13 \qquad x$$

P — Q — R

X = _____

PQ = _____   QR = _____

12.

$$\frac{5}{2}x+11 \qquad \frac{5}{2}x+11$$
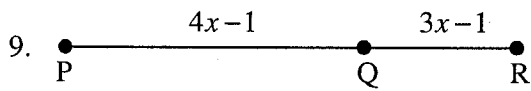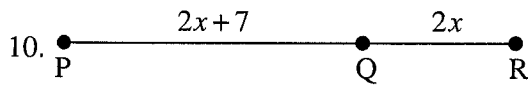
P — Q — R
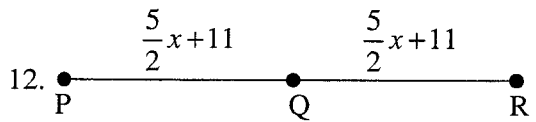
X = _____

PQ = _____   QR = _____

Write the Segment Addition Postulate for the points described. Draw a picture to help.

1. S is between D and P

2. J is between S and H

3. C is between Q and R

4. T is between M and N

C is between A and E. For each problem, draw a picture representing the three points and the information given. Solve for indicated.
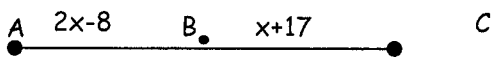
5. If AC = 24 in. and CE = 13 in., AE = _____.

6. If CE = 7in. and AE = 23 in., AC = _____.

Find QR in the following problems. R is between Q and S.

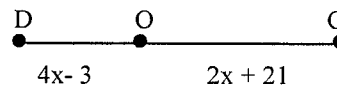7. If RS = 44.6 and SQ = 68.4, find QR.

8. If RS = 33.5 and RQ = 80, find SQ.

Refer to the figure and the given information to find each measure.

9.   Given : AC = 39 m

$$\begin{array}{cccc} A & 2x\text{-}8 & B & x\text{+}17 & C \end{array}$$

x = _____

AB = _____

BC = _____

10. Given the figure and DG = 60 ft.

$$\begin{array}{ccc} D & O & G \end{array}$$
$$4x\text{-}3 \qquad 2x + 21$$

x = _____

DO = _____

OG = _____

If U is between T and B, find the value of x and the lengths of the segments. (Hint: Draw a picture for each problem with the given information and then write the equation to solve.)

11. TU = 2x, UB = 3x + 1, TB = 21

12. TU = 4x-1, UB = 2x -1, TB = 5x

x = _____

TU = _____

UB = _____

x = _____

TU = _____

UB = _____

TB = _____

Write an equation for the each:

13. Segment AB is congruent to segment BC _____ .

14. $\overline{XY} \cong \overline{AB}$ _____

15. Point B is midpoint of segment AC_____

16. 2x+5 is equal to 4x-8_____

17. Point A is the midpoint of segment PT_____

For 18-19, suppose $\overline{RS}$ is congruent to $\overline{MN}$. For each set of lengths, solve for x, and find the length of each segment. For 20-21, $\overline{AB} \cong \overline{BC}$.

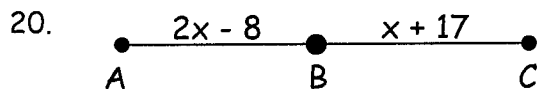18. RS = 3x + 17, MN = 7x – 15

19. RS = x + 10, MN = 2x + 4

x = _____
RS = _____
MN = _____

x = _____
RS = _____
MN = _____

20.

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 •────2x - 8────•────x + 17────•
 A             B              C
```

x = _____   AB = _____

BC = _____   AC = _____

21.

```
 ◆- - - - -3x - 31- - - - -◆
 •──x + 6──•──────────────•
 A         B              C
```

x = _____   AB = _____

BC = _____   AC = _____

BONUS

```
 ◆- - - - -5(2x + 2)- - - - -◆
 •──3(3x – 1)──•──────────•
 A            B           C
```

x = _____   AB = _____

BC = _____   AC = _____