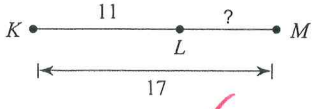
Geometry HW #7 Name Answer Key ID: 1

Segment Addition Postulate Practice

Date _____ Period ____

Find the length indicated. Be sure to a) State the Segment Addition Postulate with variables, b) Substitute for the variables, c) Solve.

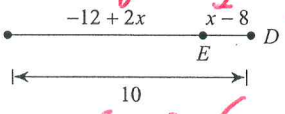
1) 

$KL+LM=KM$
$11+LM=17$
$-11 \quad -11$
$LM=6$
$11+6=17$ ✓

2) C is between B and D
BC = 10
CD = ?
BD = 14

$BC+CD=BD$
$10+CD=14$
$-10 \quad -10$
$CD=4$

Solve for *x*. Be sure to a) State the Segment Addition Postulate with variables, b) Substitute for the variables, c) Solve.

3) 

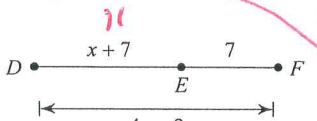
$FE+ED=FD$
$-12+2x+x-8=10$
$-20+3x=10$
$+20 \quad +20$
$\frac{3x}{3}=\frac{30}{3}$
$x=10$
$2+8=10$ ✓

4) Q is between P and R
PQ = 3
QR = 2x + 22
PR = x + 17

$PQ+QR=PR$
$3+2x+22=x+17$
$2x+25=x+17$
$-x \quad -25 \quad -x \quad -25$
$x=-8$
$3+6=9$ ✓

Find the length indicated. Be sure to a) State the Segment Addition Postulate with variables, b) Substitute for the variables, c) Solve.

5) Find *DF*



$DF=4x+2$
$DF=4(6)+2$
$DF=18$

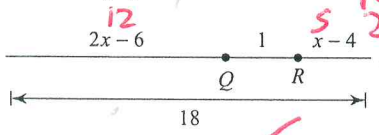
$DE+EF=DF$
$x+7+7=4x+2$
$x+14=4x+2$
$-1 \quad -2 \quad -1 \quad -2$
$\frac{12}{3}=\frac{3x}{3}$
$4=x$
$11+7=18$ ✓

6) Find *CD*

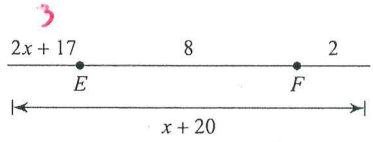
C is between B and D
BC = 2
CD = 2x - 6
BD = x + 2

$BC+CD=BD$
$2+2x-6=x+2$
$2x-4=x+2$
$-x \quad +4 \quad -x \quad +4$
$x=6$
$CD=2x-6$
$CD=2(6)-6$
$CD=6$
$2+6=8$ ✓

Solve for *x*. Be sure to a) State the Segment Addition Postulate with variables, b) Substitute for the variables, c) Solve.

7) 

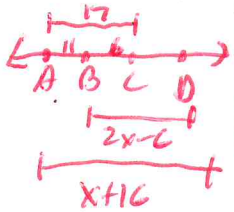
$PQ+QR+RS=PS$
$2x-6+1+x-4=18$
$3x-9=18$
$3x=27$
$x=9$
$12+1+5=18$ ✓

8) 

$DE+EF+FG=DG$
$2x+17+8+2=x+20$
$2x+27=x+20$
$-x \quad -27 \quad -x \quad -27$
$x=-7$
13
$3+8+2=13$ ✓

Points A, B, C, and D are collinear and positioned in that order. Solve for *x*. Be sure to a) State the Segment Addition Postulate with variables, b) Substitute for the variables, c) Solve.

9) Find *x* if $AC = 17$, $BD = 2x - 6$, $AD = x + 16$, and $BC = 6$.

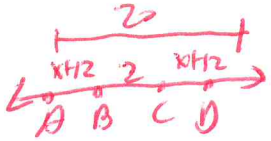


$AB+BC=AC$
$AB+6=17$
$-6 \quad -6$
$AB=11$

$BC+CD=BD$
$6+CD=2x-6$
$-6 \quad -6$
$CD=2x-12$
$CD=2(11)-12$
$CD=10$

$AB+BC+CD=AD$
$11+6+2x-12=x+16$
$5+2x=x+16$
$-5 \quad -x \quad -x \quad -5$
$x=11$
$11+6+10=27$ ✓

10) $AD = 20$, $BC = 2$, $AB = x + 12$, and $CD = x + 12$. Find *x*.



$AB+BC+CD=AD$
$x+12+2+x+12=20$
$2x+26=20$
$2x=-6$
$x=-3$
$x+12$
$-3+12=9$
$9+2+9=20$ ✓