

Welcome to class!

Please take out your notebooks, justification banks and title your page:

Segments Relationships Algebra  
Warm-up

1. Justify each step:

$$\frac{3x+5}{2} = 7$$

Given Statement

$$3x + 5 = 14$$

**Multiplication**

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$$3x = 9$$

**Subtraction**

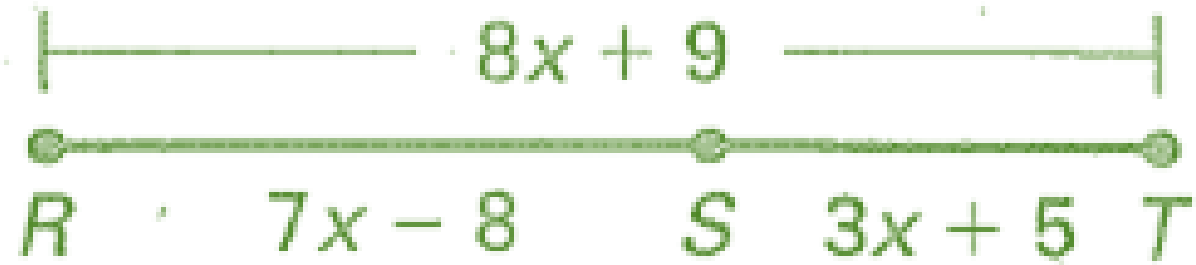
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$$x = 3$$

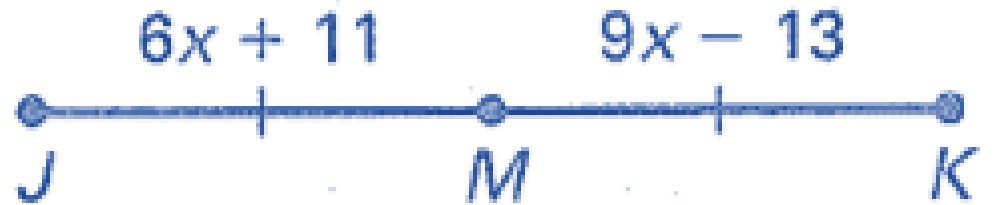
**Division**

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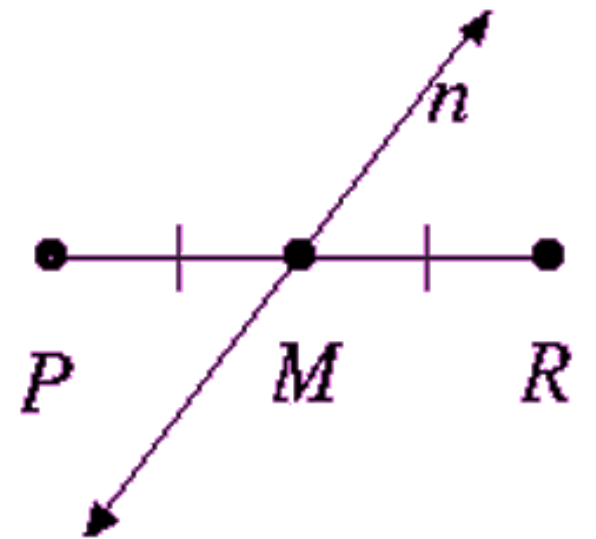
2. Find  $x$  and the length of each segment.  
Show your geometry and justification.



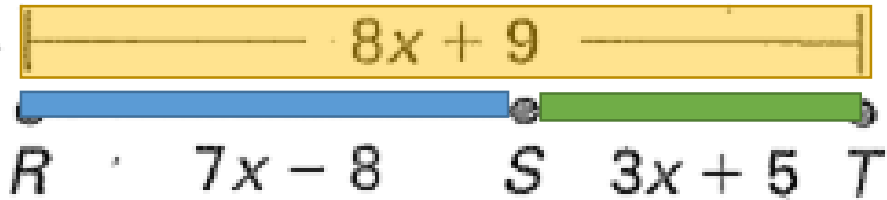
3. Find  $x$  and the length of each segment if  $M$  is the midpoint.  
Show your geometry & justification.



4. Line  $n$  is a segment bisector of  $RP$  at  $M$ . Where  $PM = 10x + 3$  and  $MR = 14x - 13$ . Find  $x$  and the length of each segment.  
Show your geometry and justification.



2. Find  $x$  and the length of each segment. Show your geometry and justification.



Geometry:

Justification:

$$RS + ST = RT$$

Segment Addition

$$7x - 8 + 3x + 5 = 8x + 9$$

Substitution (PLUG IT IN)

$$10x - 3 = 8x + 9$$

$$2x = 12$$

$$x = 6$$

$$RS = 7(6) - 8$$

$$ST = 3(6) + 5$$

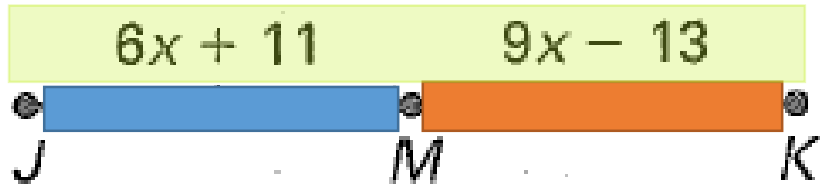
$$RT = 8(6) + 9$$

$$RS = 34$$

$$ST = 23$$

$$RT = 57$$

3. Find  $x$  and the length of each segment if  $M$  is the midpoint.  
Show your geometry and justification.



Geometry:

$$JM \cong MK$$

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

$$24 = 3x$$

$$8 = x$$

$$JM = 6(8) + 11$$

$$JM = 59$$

$$MK = 9(8) - 13$$

$$MK = 59$$

$$JM + MK = JK$$

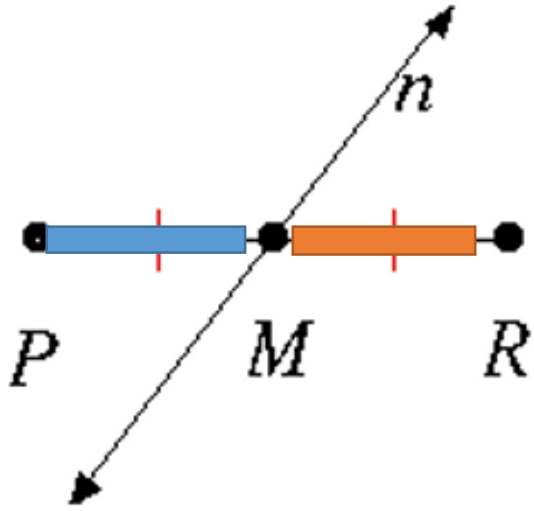
$$59 + 59 = JK$$

$$118 = JK$$

Justification:

Def of Midpoint

4. Line  $n$  is a segment bisector of  $RP$  at  $M$ . Where  $PM = 10x + 3$  and  $MR = 14x - 13$ . Find  $x$  and the length of each segment. Show your geometry and justification.



Geometry:

Justification:

$$PM \cong MR$$

Def of Segment Bisector

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

$$16 = 4x$$

$$4 = x$$

$$PM = 10(4) + 3$$

$$PM = 43$$

$$MR = 14(4) - 13$$

$$MR = 43$$

$$PM + MR = PR$$

$$43 + 43 = PR$$

$$86 = PR$$

# What should you do now?

✓ Complete Segment Relationships HW and check your solutions.

This is not collected for a grade but if you have any questions you will be expected to ask them at the start of class tomorrow.