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September 30, 2016

Test: Constructions, vocabulary, and geometric properties

Section 1: Show your knowledge of Euclid's Elements.

Make the required construction using only a compass and straightedge

Extra: State the steps of the construction

Construct a perpendicular bisector of the given line segment

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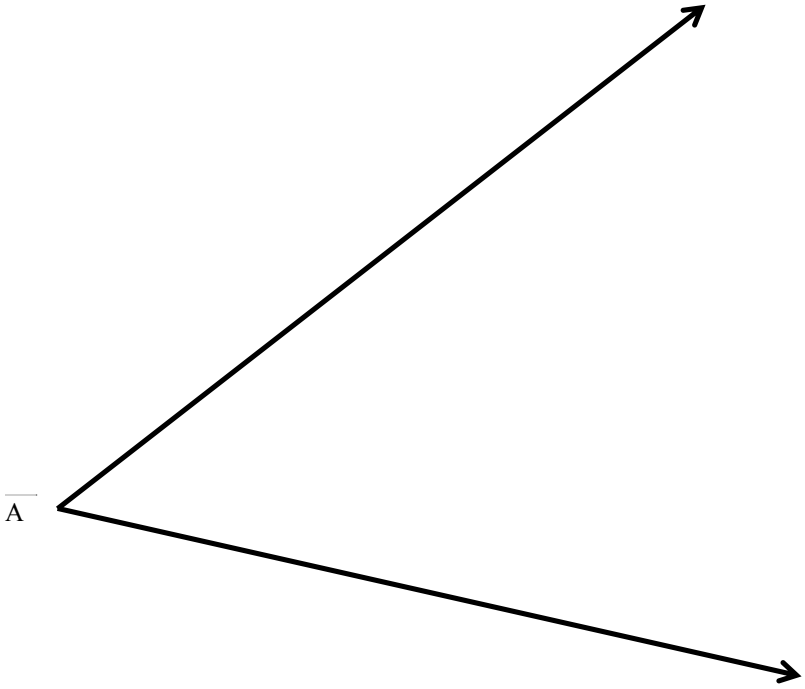
Construct an angle bisector of the given angle.



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Section 2: **Vocabulary**
Write the term that best completes each statement.

1. Points that are all located on the same line are _____.

2. A flat surface is a(n) _____.

3. The sum of the measures of supplementary angles is _____.

4. Two angles with a common side and vertex, but no overlap are called _____. In other words, they are next to each other.

5. Two or more line segments of equal measure are _____.

6. A(n) _____ is a portion of a line that includes two points and all of the collinear points between the two points.

7. A(n) _____ is a portion of a line that begins with a single point and extends infinitely in one direction.

8. The measures of complementary angle sum to _____.

9. Two or more lines located in the same plane are _____.

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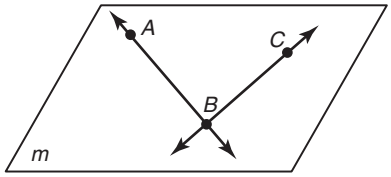
Section 3: **Logical reasoning**

10. In the figure, given that $\overline{AB} \cong \overline{BC}$, $AB = x + 9$, $BC = 14$. Solve for *x, AB, and BC.* Show each step.

Geometry (1 pt):



Substitute (1 pt):

Solve algebra:

$x =$ (1 pt)

$AB =$ (1 pt)

$BC =$ (1 pt)

Check (1 pt):

11. Given two complementary angles, $\angle ABC$ and $\angle DEF$. If $m\angle DEF = 55°$ then solve for the measure of $\angle ABC$. Show the steps.

Geometry (1 pt):

Substitute (1 pt):

Solve algebra (1 pt):

$m\angle ABC =$

Check (1 pt):

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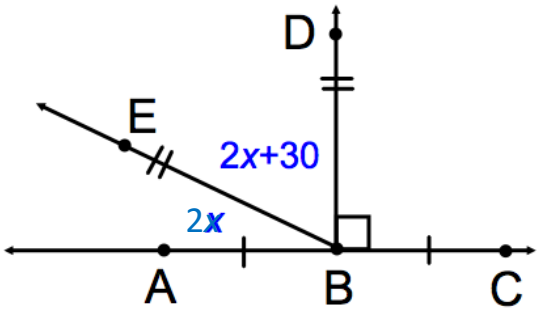
13. Given the figure, $m\angle ABE = 2x$ and $m\angle DBE = 2x + 30$. Solve for x and the angle measures. Show each the step.



Geometry (1 pt):

Substitute (1 pt):

Solve algebra:

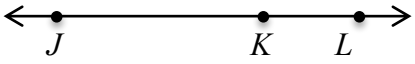
$x =$ (1 pt)

$m\angle ABE =$ (1 pt)

$m\angle DBE =$ (1 pt)

Check (1 pt):

14. Given that $JK = 3x$, $KL = x + 2$, and $JL = 18$. Find the value of x, JK, and KL. Show steps.



Geometry (1 pt):

Substitute (1 pt):

Solve algebra:

$x =$ (1 pt)

$JK =$ (1 pt)

$KL =$ (1 pt)

Check (1 pt):

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15. $\angle ABC$ and $\angle DEF$ are congruent angles. $m\angle ABC = 3x - 20$, and $m\angle DEF = 2x + 10$. Find x and the measure of each angle.

Geometry:

Substitute:

Solve algebra:

$x =$

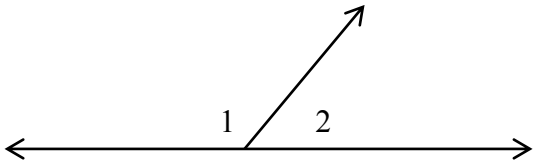
$m\angle ABC =$

$m\angle DEF =$

Check:

16. Given $m\angle 1 = 10x + 40, m\angle 2 = 2x + 20$ as shown in the figure. Solve for x and the measures of the two angles. Show the steps and check your result.

Geometry:



Substitute:

Solve algebra:

$x =$

$m\angle 1 =$

$m\angle 2 =$

Check:

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17. Given $PQ = 17$ and $QR = 3x + 2$. Points *P, Q,* and *R* are collinear and *Q* bisects $\overline{PR}$. Solve, check.

Geometry:

Substitute:

Solve algebra:

$x =$

$PQ =$

$QR =$

Check:

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The following pairs do not mean the same thing. Explain what they mean and what the difference is. Use complete sentences.

18. $\overline{AB}$ **,** AB

19. $\angle ABC \cong \angle DEF$ **,** $m\angle ABC = m\angle DEF$

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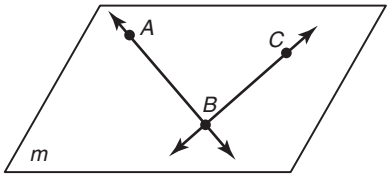
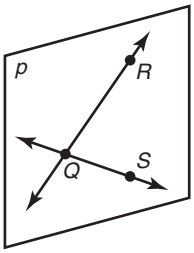
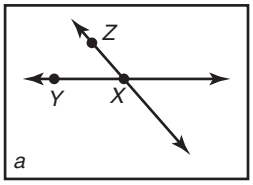
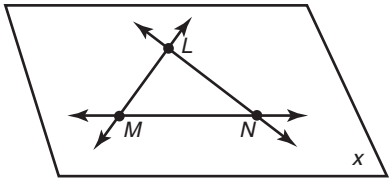
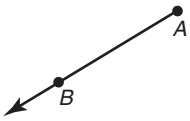
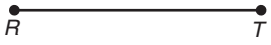




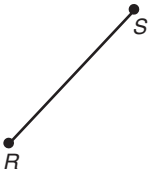


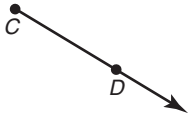






$\overline{RT}$





10. When you _____ a geometric figure, you use tools such as a ruler, straightedge, compass, or protractor.

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