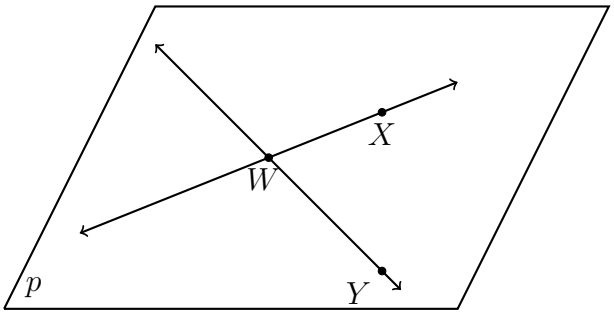
Exam: Tools of Geometry

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

2. Draw and label a line segment $\overline{AB}$ such that the distance between points A and B is 4 cm.

3. Identify three points in the given plane.

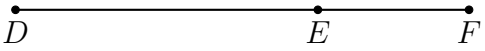


4. A flat surface is a(n) _____.

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

6. Given $\overline{DEF}$, $DE = 5\frac{1}{2}$, and $EF = 2\frac{1}{2}$.

   (a) Find DF.



   (b) The postulate used in this problem is the _____.

7. Given the points V and W, draw $\overrightarrow{WV}$.

8. Use symbols to write the name of each geometric figure.
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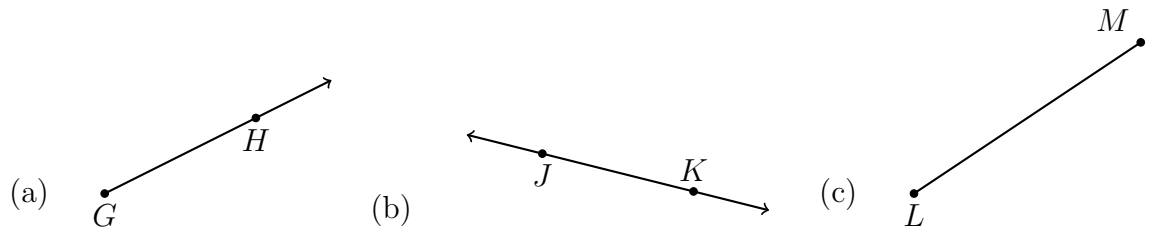
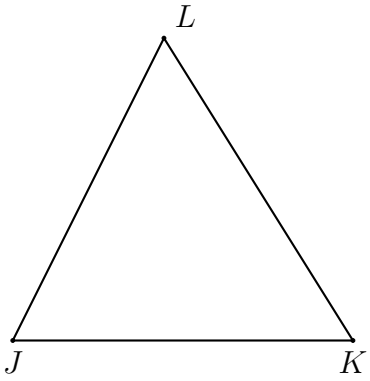


9. Using a straightedge, draw a pair of opposite rays. Label any points in the drawing and name the two rays to the right of the drawing, using proper notation.

10. Given $\triangle JKL$ with $\overline{JK} \cong \overline{KL}$. On the diagram mark the congruent line segments with tick marks.

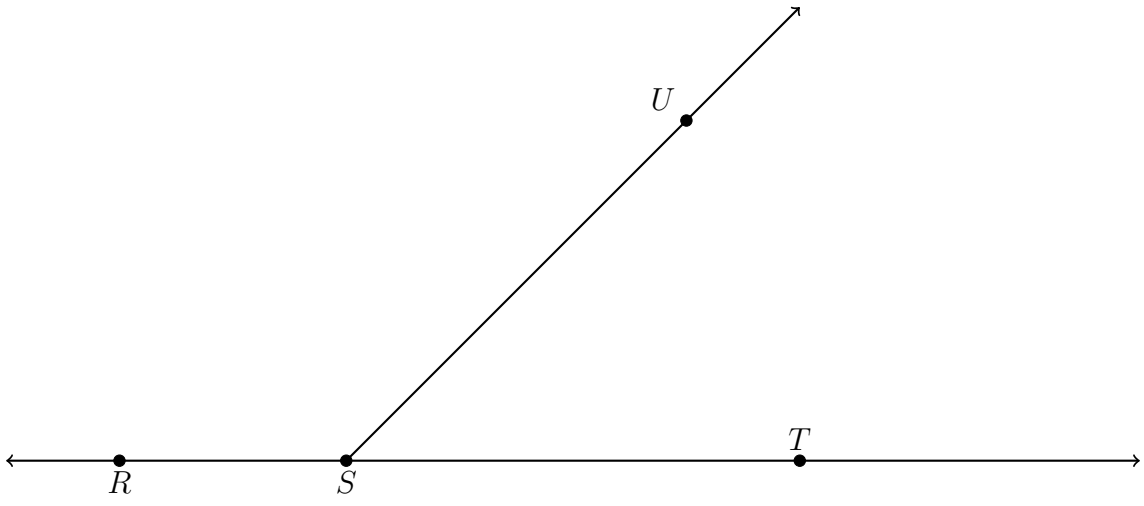


11. Find the measure of the angle in degrees and the given segment's length in centimeters.

(a) $m\angle UST =$ _____

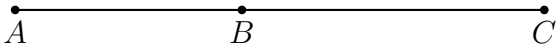
(b) $SU =$ _____

(c) Name a pair of opposite rays: _____



12. Given $\overline{ABC}$, $AB = 3x - 4$, $BC = x + 5$, $AC = 13$. Find BC.

    (a) Sketch and label the situation



    (b) Write a geometric equation: _____

    (c) Substitute algebraic values: _____

    (d) Solve for x

$x =$ _____

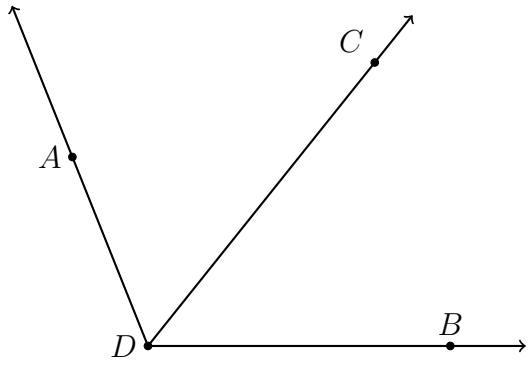
    (e) Answer the question: Find BC by substituting for x.

$BC = (\qquad) + 5 =$ _____

    (f) Check your answer

13. Given $\angle ADB$ with angle bisector $\overrightarrow{DC}$. $m\angle ADC = 4x + 2$, $m\angle BDC = 3x + 14$. Find $m\angle ADC$.

(a) Sketch and label the situation



(b) Write a geometric equation: _____

(c) Substitute algebraic values: _____

(d) Solve for x

$x =$ _____

(e) Answer the question: Find $m\angle ADC$ by substituting for x.

$m\angle ADC =$ _____

(f) Check your answer

14. Complete the construction of an equilateral triangle including the six steps.

    (a) Given the line segment $\overline{MN}$.

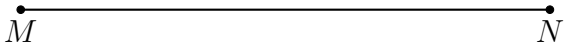
    (b) Construct circle M with radius _____.

    (c) Construct circle _____ with radius _____.

    (d) Label the intersection P of the two circles.

    (e) Draw line segments _____ and _____

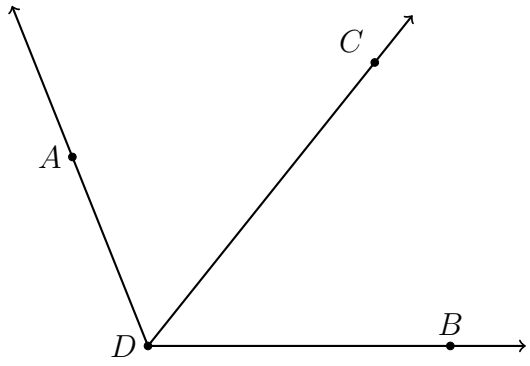
    (f) $\triangle MNP$ is equilateral.



Spicy

15b. Given $\angle ADB$ with angle bisector $\overrightarrow{DC}$ and $m\angle ADC = 4x + 2$, $m\angle ADB = 7x + 16$. Find $m\angle BDC$.

1. Sketch and label the situation



2. Write a geometric equation: _____

3. Substitute algebraic values: _____

4. Solve for x

$x =$ ____

5. Answer the question: Find $m\angle BDC$

$m\angle BDC =$ ____

6. Check your answer

Spicy

16b. Complete the construction of an equilateral triangle including the six steps.

1. Given the line segment $\overline{MN}$.

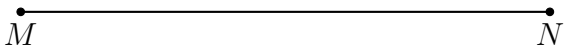
2.

3.

4.

5.

6. $\triangle MNP$ is equilateral.



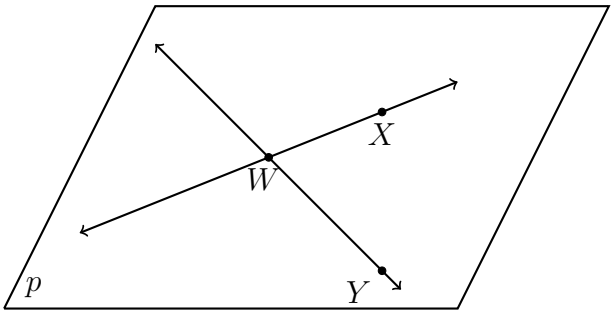
Exam Corrections: Tools of Geometry

Study your errors. For each, write a note to yourself: what you need to do differently. Do all problems in this handout.

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

2. Draw and label a line segment $\overline{AB}$ such that the distance between points A and B is 4 cm.

3. Identify three line segments in the given plane.



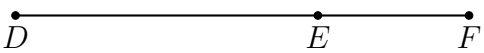
4. A flat surface is a(n) _____.

5. Find the value of $|15 - 3| + |4 - 15|$.

6. Two line segments or angles of equal measure are _____.

7. Given $\overline{DEF}$, $DE = 4\frac{1}{5}$, and $EF = 1\frac{3}{5}$.

   (a) Find DF.



   (b) The postulate used in this problem is the _____.

8. Given the points V and W, draw $\overline{VW}$.

9. Use symbols to write the name of each geometric figure.
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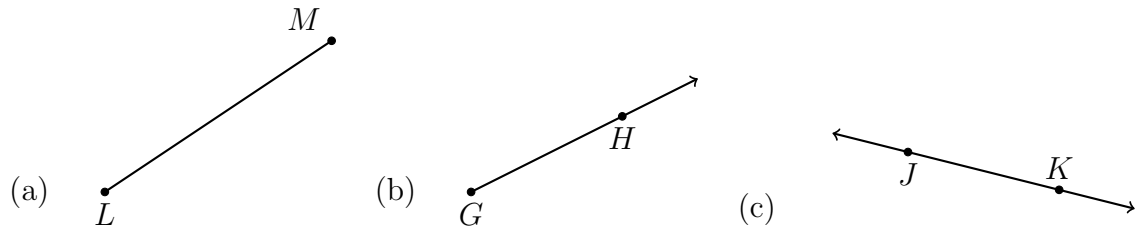
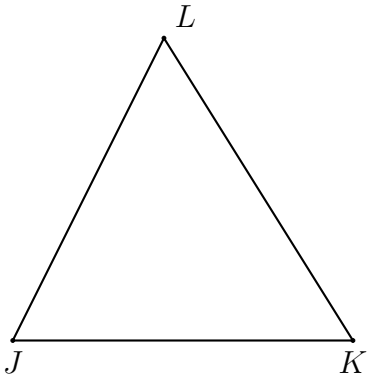


10. Given $P(-2, 5)$ and $Q(4, -7)$. What is the slope of $\overleftrightarrow{PQ}$? Use the formula $m = \dfrac{y_Q - y_P}{x_Q - x_P}$.

11. Using a straightedge, draw a pair of opposite rays. Label any points in the drawing and name the two rays to the right of the drawing, using proper notation.

12. Given $\triangle JKL$ with $\overline{JK} \cong \overline{JL}$. On the diagram mark the congruent line segments with tick marks.



13. Find the measure of the angle in degrees and the given segment's length in centimeters.

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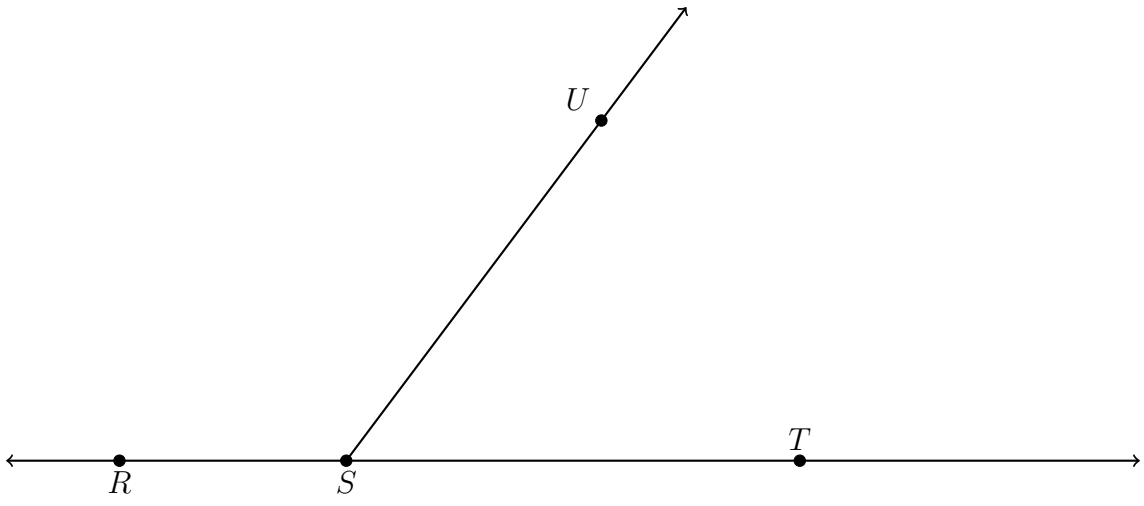
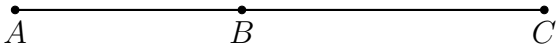


14. Given $\overline{ABC}$, $AB = 3x - 4$, $BC = x + 5$, $AC = 21$. Find BC.

(a) Sketch and label the situation



(b) Write a geometric equation: _____

(c) Substitute algebraic values: _____

(d) Solve for x

$x =$ _____

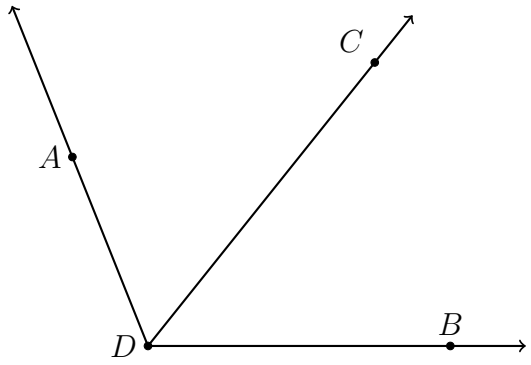
(e) Answer the question: Find BC by substituting for x.

$BC = (\qquad) + 5 =$ _____

(f) Check your answer

15. Given $\angle ADB$ with angle bisector $\overrightarrow{DC}$. $m\angle ADC = 5x - 5$, $m\angle BDC = 3x + 19$. Find $m\angle ADC$.

(a) Sketch and label the situation



(b) Write a geometric equation: _____

(c) Substitute algebraic values: _____

(d) Solve for x

$x =$ _____

(e) Answer the question: Find $m\angle ADC$ by substituting for x.

$m\angle ADC =$ _____

(f) Check your answer

16. Complete the construction of an equilateral triangle including the six steps.

    (a) Given the line segment $\overline{MN}$.

    (b) Construct circle M with radius _____.

    (c) Construct circle _____ with radius _____.

    (d) Label the intersection P of the two circles.

    (e) Draw line segments _____ and _____

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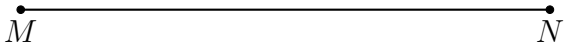
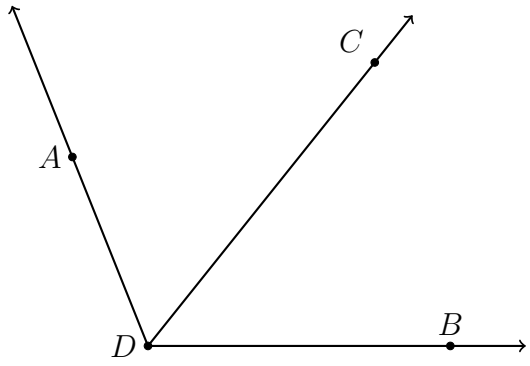


Spicy

15b. Given $\angle ADB$ with angle bisector $\overrightarrow{DC}$ and $m\angle ADC = 5x - 5$, $m\angle ADB = 8x + 14$. Find $m\angle BDC$.

1. Sketch and label the situation



2. Write a geometric equation: _____

3. Substitute algebraic values: _____

4. Solve for x

$x =$ _____

5. Answer the question: Find $m\angle BDC$

$m\angle BDC =$ _____

6. Check your answer

Spicy

16b. Complete the construction of an equilateral triangle including the six steps.

1. Given the line segment $\overline{MN}$.

2.

3.

4.

5.

6. $\triangle MNP$ is equilateral.