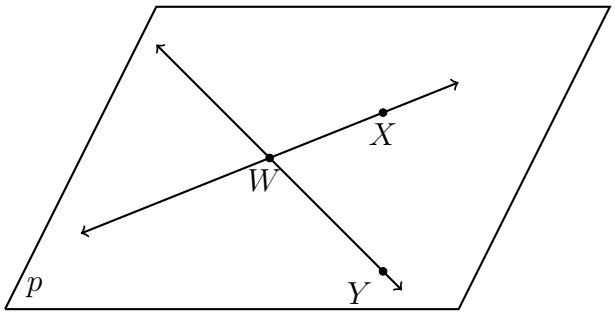
1.7 Exam: Tools of Geometry

1. I have a calculator. (circle one). Yes No
2. I have a compass, ruler, protractor, notebook, and folder (circle one). Yes No
3. Complete the construction of an equilateral triangle and complete the six steps.
   (a) Given the line segment $\overline{MN}$.
   (b) Construct circle M with radius MN.
   (c) Construct circle _____ with radius MN.
   (d) Label the intersection P of the two circles.
   (e) Draw line segment $\overline{MP}$ and line segment _____
   (f) $\triangle MNP$ is equilateral.

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

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

6. Identify three points in the given plane.

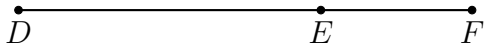


7. A flat surface is a(n) _____.

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

9. 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 _____.

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

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

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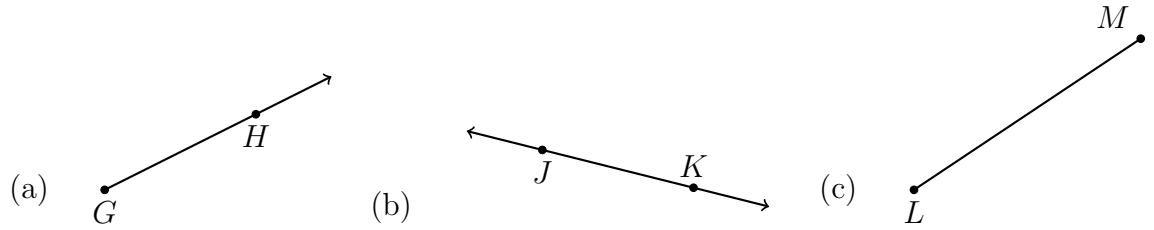
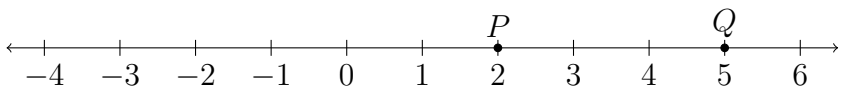


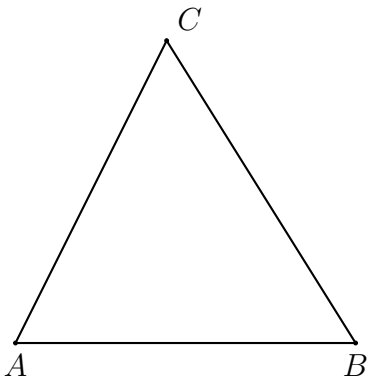
12. Using a straightedge, draw a pair of opposite rays. Label any points in the drawing and name the two rays to the right of the drawing, using proper notation.

13. Given $\overleftrightarrow{PQ}$ as shown on the number line.



What is the distance on the number line between the points P and Q?

14. Given $\triangle ABC$ with $\overline{AB} \cong \overline{AC}$. On the diagram mark the congruent line segments with tick marks.

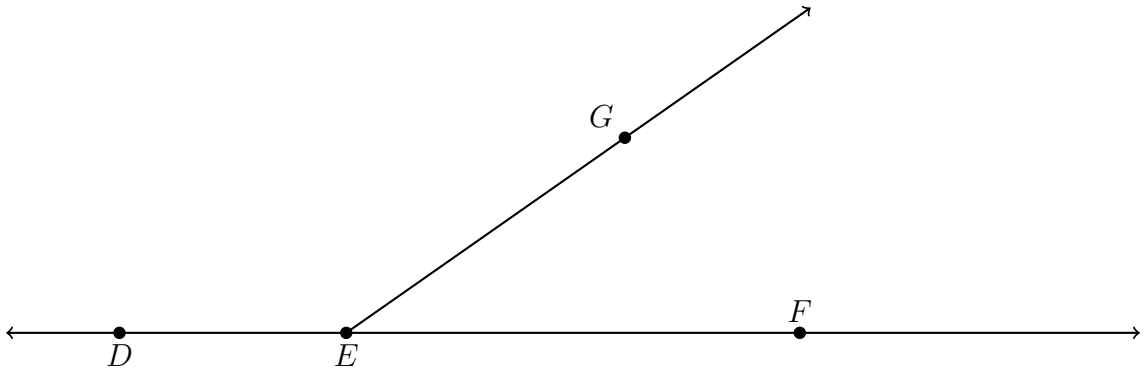


15. Find the measure of the angle in degrees and the given segment's length in centimeters.

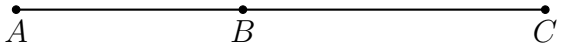
(a) $m\angle GEF =$ _____

(b) $EG =$ _____

(c) Name a pair of opposite rays: _____



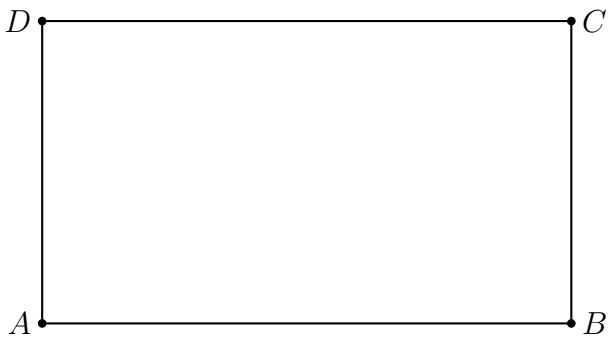
16. Given $\overline{ABC}$, $AB = 3x - 4$, $BC = x + 5$, $AC = 13$. Find BC.
Check your answer for full credit.



17. Given the rectangle $ABCD$ shown below.

    (a) Measure and mark the length and width of the rectangle in centimeters.

    (b) Calculate the area of the rectangle in square centimeters. (show your work)



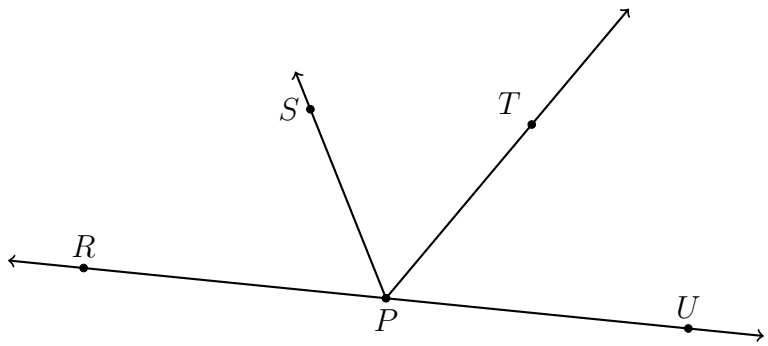
18. Use each term according to its geometric meaning: "sketch", "draw", "construct".

    (a) _____ is to make a freehand diagram showing important features.

    (b) _____ is to depict with accurate measures using ruler, protractor, and compass.

    (c) _____ is a formal, logical process to create geometric figures using only a straightedge and compass.

19. Given the situation in the diagram, answer each question. Circle True or False.



    (a) True or False: $\overrightarrow{PR}$ and $\overrightarrow{PU}$ are opposite rays.

    (b) True or False: $\angle TPR$ is an obtuse angle.

    (c) True or False: $\angle RPS$ and $\angle TPU$ are adjacent angles.

20. In the following two problems, solve for the value of x.

    (a) $3(x-5) = -33$

    (b) $3 - \frac{1}{2}x = 2$