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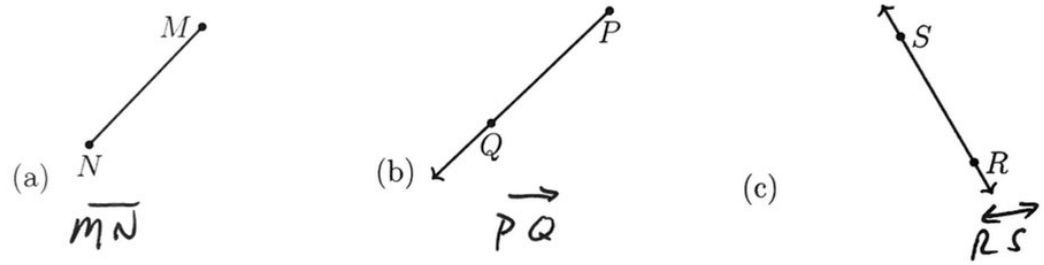
1.6 Pre-test review: Length and perimeter, geometric notation

A. Conventions: terminology, notation, diagramming

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



(a) $\overline{MN}$ (b) $\overrightarrow{PQ}$ (c) $\overleftrightarrow{RS}$

2. Objects in the same plane are Coplanar.

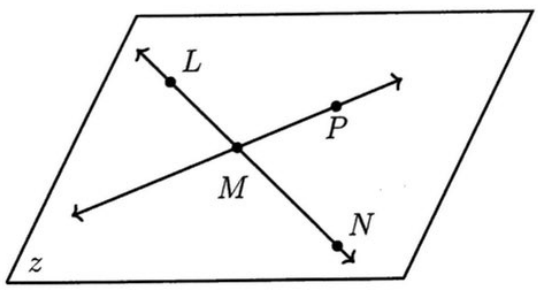
3. A word that means that two lines cross is that they intersect.

4. Write the symbol that means congruent. $\cong$

5. Two things that are next to each other are adjacent.

6. Mark point B on the ray exactly 5 centimeters from the endpoint A. (measure it)

7. Various objects are depicted. Circle True or False for each statement.



(a) (T) F The line $\overleftrightarrow{MP}$ is shown.

(b) T (F) The plane is labeled p.

(c) T (F) $\overrightarrow{LM}$ and $\overrightarrow{NM}$ are opposite rays.

(d) (T) F M is the intersection of two lines.

8. Given the expression $\frac{2}{3}x$, write down each:

(a) The fraction's numerator 2 (b) The variable x

B. Modeling situations with algebra

9. Collinear points are shown below, $\overline{ABC}$.

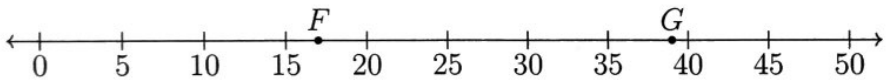
   (a) Measure and label the lengths AB and BC to the nearest centimeter.

   (b) Write an equation employing the Segment Addition Postulate.

   (fill in the blanks with values in centimeters)

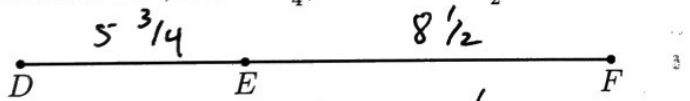
$AB =$ 6 $+$ 3 $=$ 9 cm

10. Points $F = 17$ and $G = 39$ are shown below. Find FG.



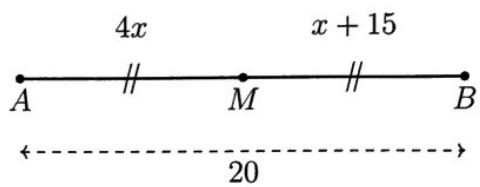
$FG = 39 - 17 = 22$

11. Given $\overline{DEF}$, $DE = 5\frac{3}{4}$, and $EF = 8\frac{1}{2}$. Find DF as a mixed fraction.



$DF = 5\frac{3}{4} + 8\frac{1}{2} = 14\frac{1}{4}$

12. As diagrammed below, point M is the midpoint of $\overline{AB}$, $AM = 4x$, $MB = x + 15$, $AB = 20$. Circle True or False for each equation.



(a) (T) F $4x = x + 15$

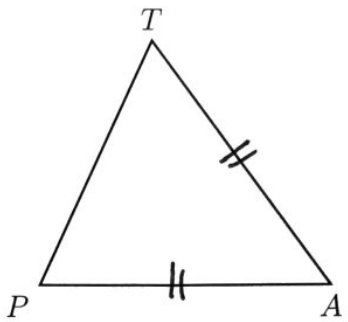
(b) T (F) $4x = 20$

(c) (T) F $4x + (x + 15) = 20$

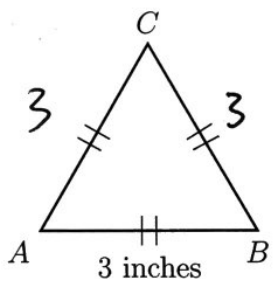
(d) (T) F $2(x + 15) = 20$

C. Perimeter and special shapes

13. Given isosceles $\triangle PAT$ with $\overline{PA} \cong \overline{AT}$. On the diagram mark the congruent line segments with tick marks.

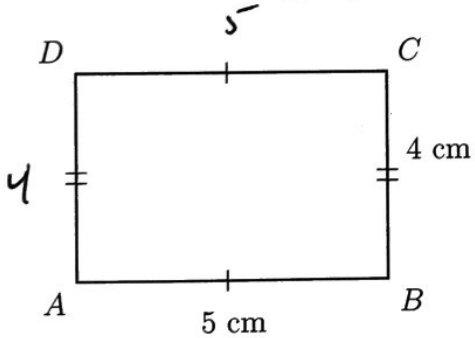


14. Given equilateral triangle ABC with $AB = 3$ inches. Find the perimeter of $\triangle ABC$.



$P = 3+3+3 = 9$ inches

15. Rectangle $ABCD$ is shown with length 5 centimeters and width 4 cm. Fill in the blanks and find the rectangle's perimeter.



$P = 5+4+\underline{5}+\underline{4} = \underline{18}$ cm

16. The perimeter of a square is 48 centimeters. Find the length of the square's sides.

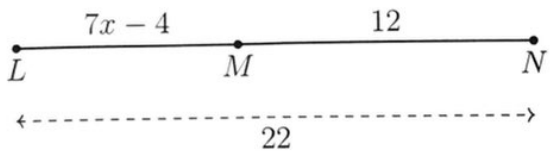
$P = s+s+s+s = 48$

$4s = 48$

$s = 12$ cm

D. Solving algebraic equations for one variable

17. Given $\overline{LMN}$, $LM = 7x - 4$, $MN = 12$, $LN = 22$.



(a) Write down an equation to represent the situation. $(7x-4)+12=22$

(b) Solve for x.

$7x+8=22$

$7x=\cancel{30}\ 14$

$x=\frac{\cancel{30}}{\cancel{7}}\ 2$

(c) Check your answer.

$LM = 7(2)-4 = 10$

$MN = 12 \qquad 10+12=22$ ✓

18. As diagrammed below, point M is the midpoint of $\overline{AB}$, $AM = 4x$, $MB = x + 15$, ~~$AB = 20$~~. Solve for x. (show the check for full credit)

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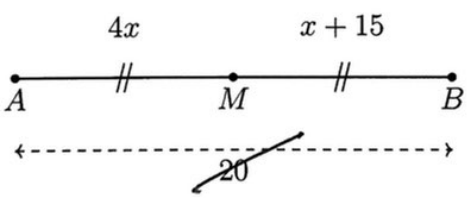

$4x = x+15$

$3x = 15$

$x = 5$

$AM = 4(5) = 20$

$MB = 5+15 = 20$

$20 = 20$ ✓