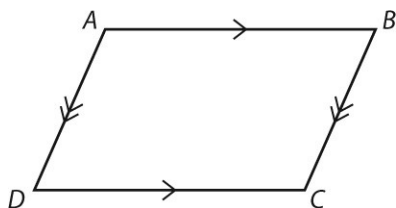


## Unit 3 Review

Use the figure for 1–3.  $ABCD$  is a Parallelogram.



1.  $\overline{AB}$  is congruent to what other segment?

\_\_\_\_\_

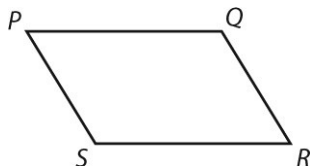
2.  $\angle D$  is congruent to what other angle?

\_\_\_\_\_

3.  $\angle D$  is supplementary to what other angles?

\_\_\_\_\_

Use parallelogram  $PQRS$  for 4–6.



4. If  $m\angle P = 2x^\circ$ ,  $m\angle R = (x + 31)^\circ$ , find the value for  $x$ .

\_\_\_\_\_

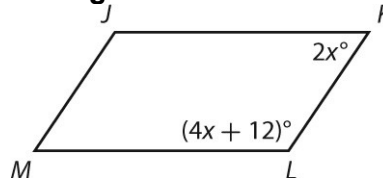
5. Using your answer from problem 4, find the measure of all four angles.

\_\_\_\_\_

6. If  $QR = 16$  and  $PS = 3y - 5$ , find the value for  $y$ .

\_\_\_\_\_

Use parallelogram  $JKLM$  for 7–8.

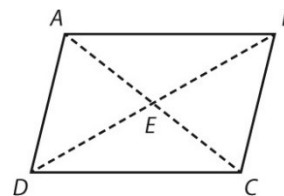


7. What is the value of  $x$ ?

8. What are the measures of all the interior angles of the parallelogram?

Use the following information for 9–13.

In parallelogram  $CDEF$ ,  $AE = 3x + 4$ ,  $EC = 2x + 8$ ,  $BE = 4y + 1$ , and  $BD = 18$ .



9. What is the value of  $x$ ?

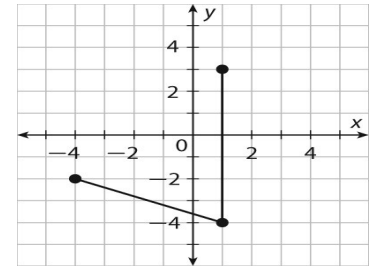
10. What is the value of  $y$ ?

11. What is the length of  $\overline{EC}$ ?

12. What is the length of  $\overline{AC}$ ?

13. What is the length of  $\overline{ED}$ ?

14. Three vertices of a quadrilateral are shown. What are the coordinates of the fourth vertex so that it is a parallelogram?



For Problems 15-16, use the table below. A city block is a quadrilateral bounded by four streets with given equations.

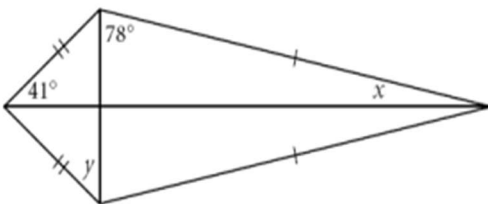
Street	Equation
Blue St.	$y = 3x - 4$
Red St.	$y = -\frac{1}{3}x + 6$
Yellow St.	$3x - y = 10$
Green St.	$2x + 6y = 18$

15. Is the city block a parallelogram? Explain your reasoning.

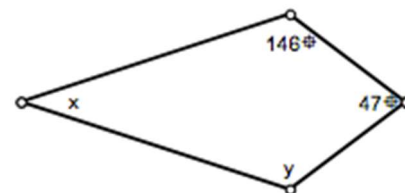
16. Is the city block a rectangle? Explain your reasoning.

17. Solve for the variables in the kites:

$x = \underline{\hspace{2cm}}, y = \underline{\hspace{2cm}}$



$x = \underline{\hspace{2cm}}, y = \underline{\hspace{2cm}}$

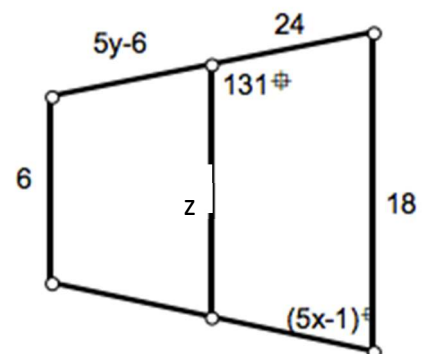


18. Solve for the variables in the isosceles trapezoid with the midsegment drawn in:

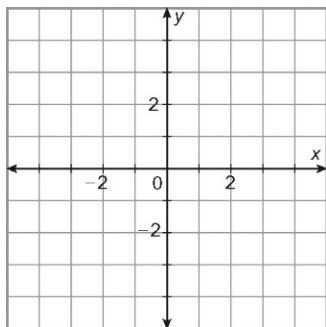
$x = \underline{\hspace{2cm}}$

$y = \underline{\hspace{2cm}}$

$z = \underline{\hspace{2cm}}$



19. A quadrilateral has vertices  $A(-2, 3)$ ,  $B(3, 1)$ ,  $C(-2, -1)$ , and  $D(-3, 1)$ . Graph the points, identify the shape, and find the perimeter and area, rounding to the nearest tenth. **All work must be shown.**



Shape: \_\_\_\_\_

Perimeter = \_\_\_\_\_

Area = \_\_\_\_\_

20. Find each side length in the polygon below, then find the area and perimeter. Round all answers to the nearest tenth. **All work must be shown.**

Side lengths:

AB = \_\_\_\_\_

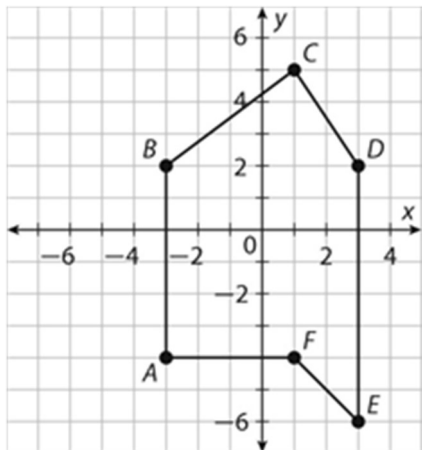
BC = \_\_\_\_\_

CD = \_\_\_\_\_

DE = \_\_\_\_\_

EF = \_\_\_\_\_

FA = \_\_\_\_\_



Perimeter = \_\_\_\_\_

Area = \_\_\_\_\_

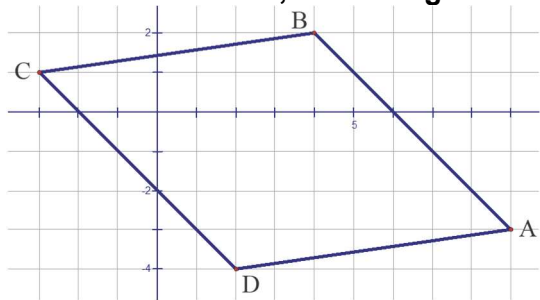
$$\text{Slope: } m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\text{Distance: } \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$\text{Midpoint: } \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$\text{Area: Triangle } A = \frac{bh}{2} \quad \text{Rectangle } A = bh$$

For Problems 21-26, use the figure below.



21. Calculate the following slopes. Note that some segments are not drawn in the figure.

Slope  $\overline{BA}$  =

Slope  $\overline{DA}$  =

Slope  $\overline{CD}$  =

Slope  $\overline{CB}$  =

Slope  $\overline{DB}$  =

Slope  $\overline{CA}$  =

22. Calculate the following slopes. Note that some segments are not drawn in the figure.

Length  $\overline{BA}$  =

Length  $\overline{DA}$  =

Length  $\overline{CA}$  =

Length  $\overline{DB}$  =

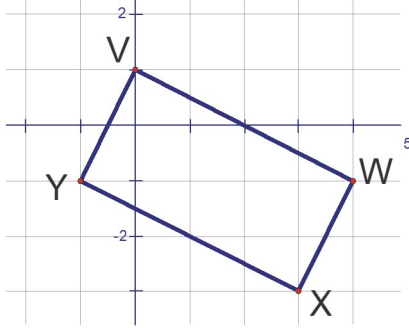
23. Using your calculations in Problems 21 and 22, explain how you know that the figure is a parallelogram.

24. Is the figure a rectangle? Use your calculations in Problems 21 and 22 to support your answer.

25. Is the figure a rhombus? Use your calculations in Problems 21 and 22 to support your answer.

26. Is the figure a square? Explain how you came to that conclusion.

For Problems 27-32, use the figure below.



27. Calculate the following slopes. Note that some segments are not drawn in the figure.

$$\text{Slope } \overline{VW} =$$

$$\text{Slope } \overline{XW} =$$

$$\text{Slope } \overline{YX} =$$

$$\text{Slope } \overline{YV} =$$

$$\text{Slope } \overline{YW} =$$

$$\text{Slope } \overline{VX} =$$

28. Calculate the following slopes. Note that some segments are not drawn in the figure.

$$\text{Length } \overline{VW} =$$

$$\text{Length } \overline{YV} =$$

$$\text{Length } \overline{YW} =$$

$$\text{Length } \overline{VX} =$$

29. Using your calculations in Problems 27 and 28, explain how you know that the figure is a parallelogram.

30. Is the figure a rectangle? Use your calculations in Problems 27 and 28 to support your answer.

31. Is the figure a rhombus? Use your calculations in Problems 27 and 28 to support your answer.

32. Is the figure a square? Explain how you came to that conclusion.