

Date:

Title:

**(A) Lesson Objectives**

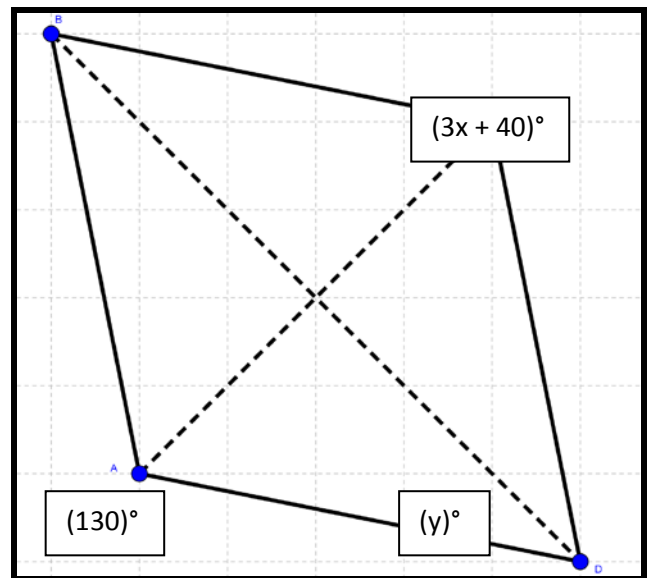
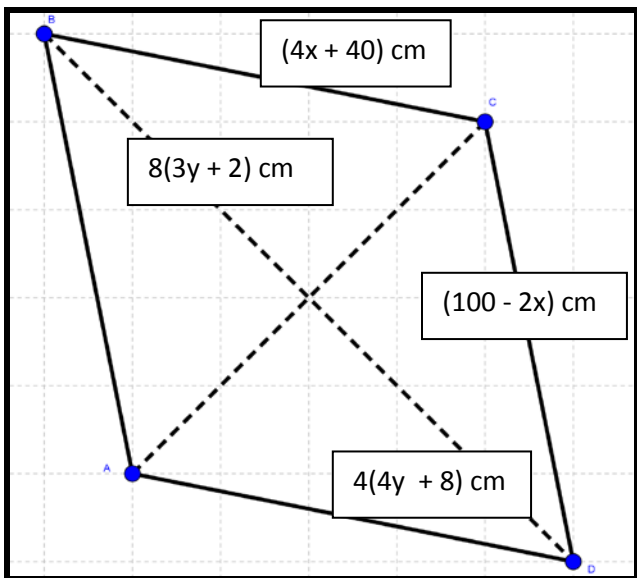
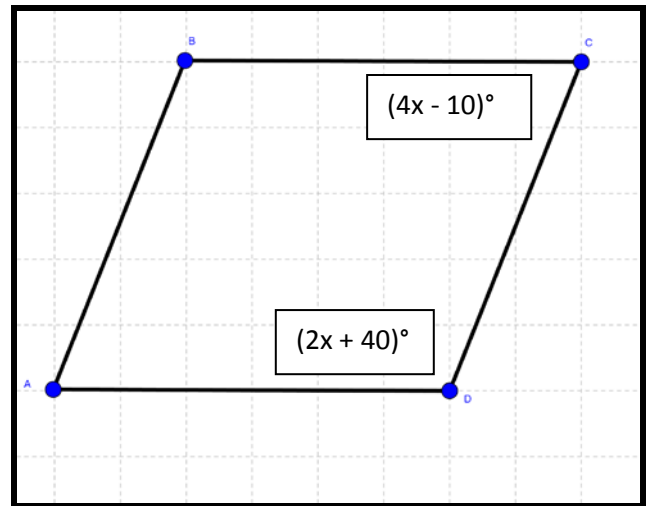
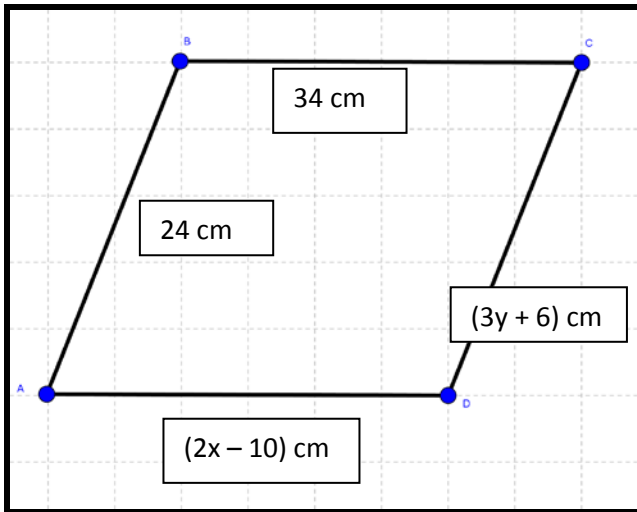
- a. Solve simple linear equations in the context of the relationships and angle relationships in quadrilaterals
- b. Review the midpoint and length formulas

**(B) Fast Five**

- a. Determine the distance between A(-2,3) and B(6,-1) and then determine the midpoint
- b. Determine the distance between C(0,-3.5) and D(4.5,2) and then determine the midpoint
- c. Complete the following chart highlighting the various side & angle relationships in quadrilaterals

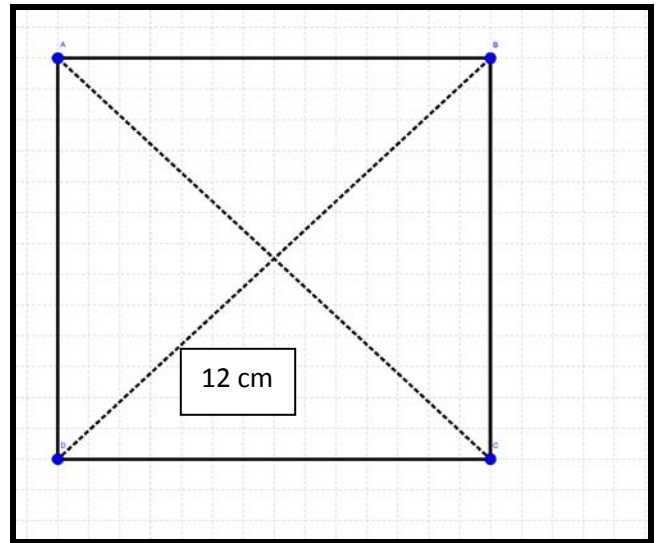
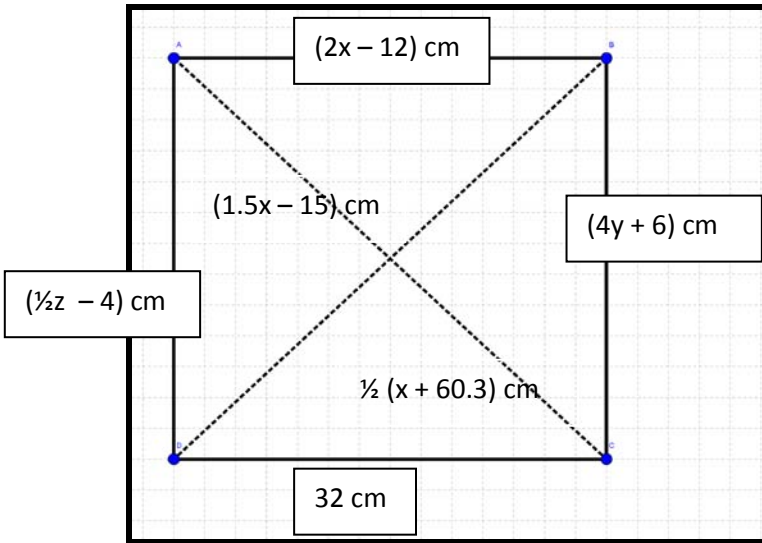
**(C) Explorations**

- a. From the diagrams, determine the value of x.



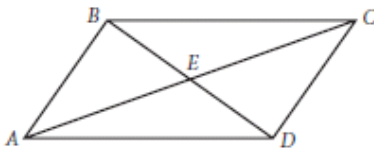
Date:

Title:



Set C

*ABCD* is a parallelogram with diagonals  $\overline{BD}$  and  $\overline{AC}$ .



- If  $m\angle CBD = 26^\circ$ ,  $m\angle DCA = 72^\circ$ , and  $m\angle DEC = 81^\circ$ . Find  $m\angle BAD$ . \_\_\_\_\_
- If  $AC = 3x + 5y$ ,  $EC = 2x + y$ ,  $BC = 3x + y$ , and  $AD = 5$ . Find the length of  $AC$ . \_\_\_\_\_

*BDEF* is a rhombus. Points *D*, *E*, and *F* are midpoints of  $\overline{AB}$ ,  $\overline{AC}$  and  $\overline{BC}$ , respectively.  $GE = x + 6$ ,  $BE = 16$ ,  $DF = 30$  and  $GF = 2y - x$ .

Find *x* and *y*

Set D

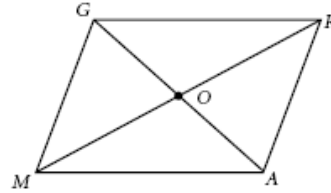
In parallelogram *ABCD*,  $m\angle DAB = 11x + 1$ ,  $m\angle ABC = 2(7x + 2)$ ,  $m\angle CDB = 6x + 1$ ,  $m\angle DCA = 5x - 1$ . Find the following measures.

- |                         |                         |
|-------------------------|-------------------------|
| 7. $x$ _____            | 8. $m\angle DAB$ _____  |
| 9. $m\angle DCB$ _____  | 10. $m\angle ADC$ _____ |
| 11. $m\angle ACB$ _____ | 12. $m\angle ADB$ _____ |

Date: \_\_\_\_\_

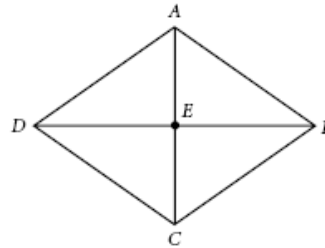
Title: \_\_\_\_\_

In parallelogram  $GRAM$ ,  $MO = 10$ ,  $MA = 16$ ,  $m\angle GMA = 75^\circ$ , and  $m\angle MRG = 35^\circ$ .



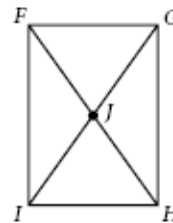
- |                        |                        |
|------------------------|------------------------|
| 1. $m\angle GRA$ _____ | 2. $m\angle MGR$ _____ |
| 3. $RO$ _____          | 4. $GR$ _____          |
| 5. $m\angle RMA$ _____ | 6. $m\angle GMO$ _____ |

In rhombus  $ABCD$ ,  $AB = 6$ ,  $AC = 8$ , and  $m\angle ABC = 30^\circ$ .



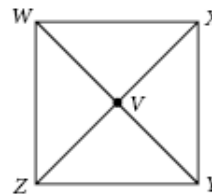
- |                         |                         |
|-------------------------|-------------------------|
| 7. $m\angle ADC$ _____  | 8. $m\angle AEB$ _____  |
| 9. $BC$ _____           | 10. $AE$ _____          |
| 11. $m\angle BAD$ _____ | 12. $m\angle CED$ _____ |
| 13. $CD$ _____          | 14. $EC$ _____          |

In rectangle  $FGHI$ ,  $FG = 8$ ,  $FI = 15$ , and  $FH = 17$ .



- |                |                         |
|----------------|-------------------------|
| 15. $HI$ _____ | 16. $GH$ _____          |
| 17. $GI$ _____ | 18. $FJ$ _____          |
| 19. $GJ$ _____ | 20. $m\angle FIH$ _____ |

In square  $WXYZ$ ,  $WX = 20$  and  $WY \approx 28.3$ .



- |                         |                         |
|-------------------------|-------------------------|
| 21. $XY$ _____          | 22. $XZ$ _____          |
| 23. $m\angle WVX$ _____ | 24. $m\angle XYV$ _____ |

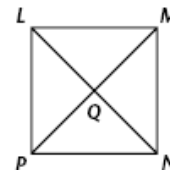
Quadrilateral  $ABCD$  is a parallelogram.



13. If  $m\angle CDB = 24^\circ$ ,  $m\angle A = (6x + 9)^\circ$  and  $m\angle BDA = 33^\circ$ . Find  $x$ . \_\_\_\_\_
14. The perimeter of  $ABCD$  is 56. Find the dimensions if  $AB = 3x + 7$  and  $DA = x - 3$ . \_\_\_\_\_

Exercises 6–11 refer to square  $LMNP$ . Complete each statement.

6. If  $LP = x^2 - 4$  and  $PN = x + 2$ , then  $x =$  \_\_\_\_\_.
7. If  $LQ = 3y + 2$  and  $NQ = 6y + 0.5$ , then  $y =$  \_\_\_\_\_.
8. If  $LN = z^2 - 9$  and  $PM = z + 3$ , then  $z =$  \_\_\_\_\_.



Decide if the following statements are *always true*, *sometimes true*, or *never true*.

6. A rectangle is a rhombus. \_\_\_\_\_
7. A square is a rhombus. \_\_\_\_\_
8. A rhombus is a rectangle. \_\_\_\_\_
9. A rhombus is a square. \_\_\_\_\_