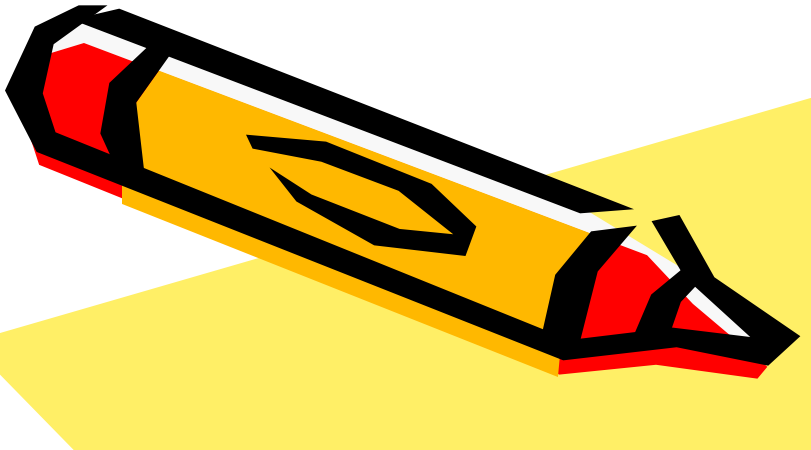
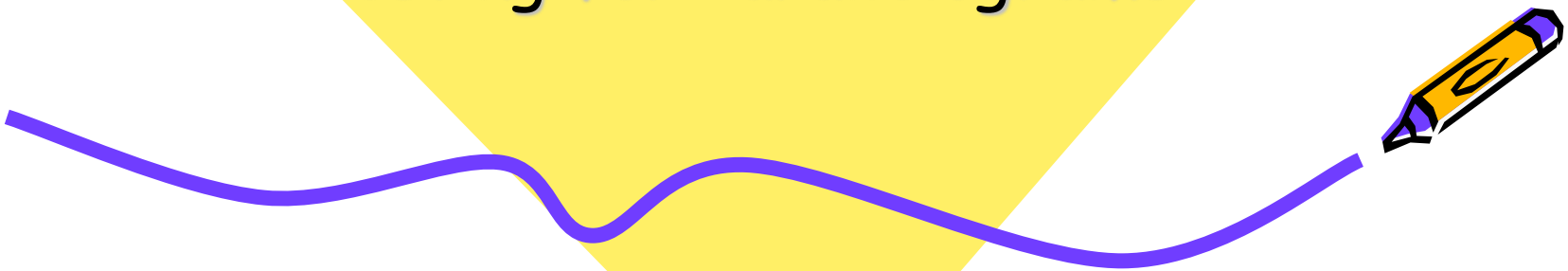


Geometry

Testing for Parallelograms

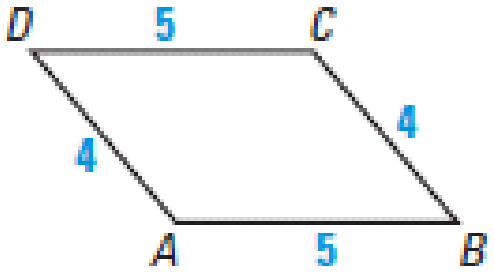


How to determine if a Quadrilateral is a Parallelogram

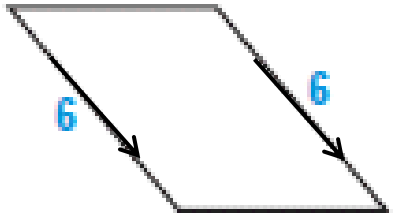
- A quadrilateral is a parallelogram:
  - If both pairs of opposite sides are parallel
  - If both pairs of opposite sides are congruent
  - If both pairs of opposite angles are congruent
  - If consecutive angles are supplementary in both directions
  - If the diagonals bisect each other
  - If one pair of opposite sides is both parallel & congruent

Is this a parallelogram? Why?

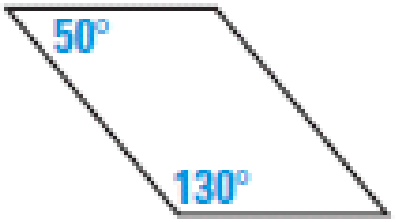
a)



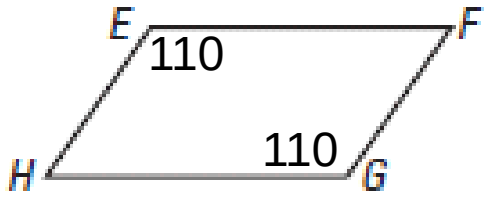
b)



c)

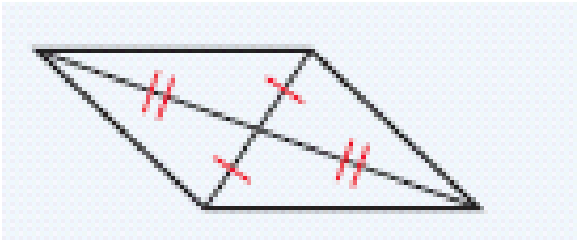


d)

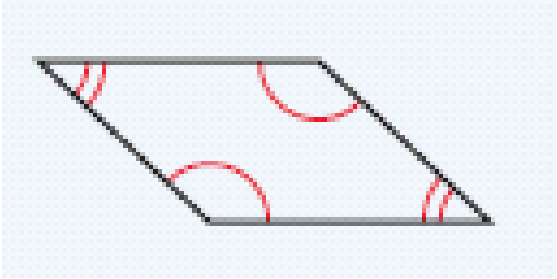


Is this a parallelogram? Why?

e)

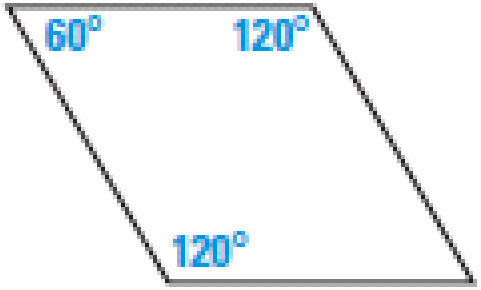


f)



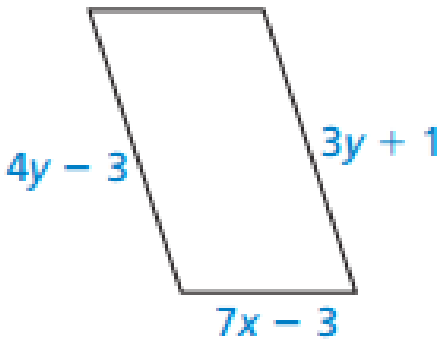
g)

h)

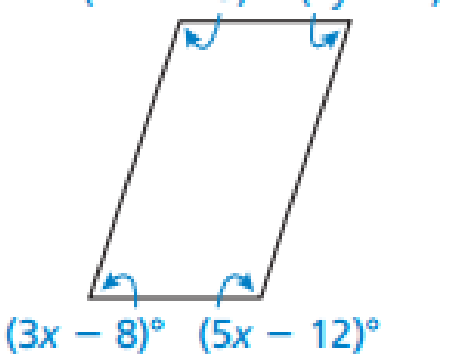


Find the value of x and y that makes each quadrilateral a parallelogram.

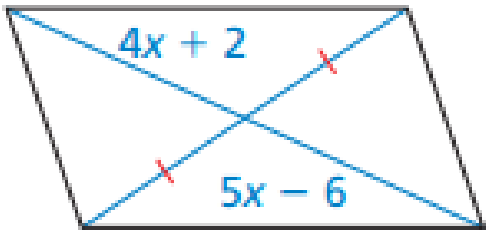
11.



12.



13.



Determine if the given vertices define a parallelogram.

17. $A(0, 1), B(4, 4), C(12, 4), D(8, 1)$

19. $J(-2, 3), K(-5, 7), L(3, 6), M(6, 2)$