Slide 1

5.6 Exploring Properties

Properties of Triangles
and Quadrilaterals

Slide 2

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

Midpoint $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$
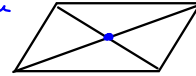
Parallel $m_1 = m_2$

Perpendicular $m_1 = -\frac{1}{m_2}$

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

Slide 3

Diagonals

Distance
$\sqrt{8^2 + 5^2} = \sqrt{8^2 + 5^2}$

(0, 5)   (8, 5)

(4, $\frac{5}{2}$)
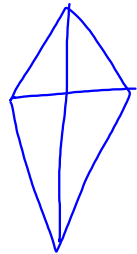
(0, 0)   (8, 0)
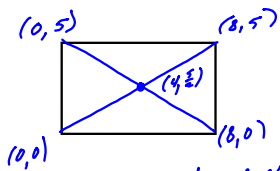
Diagonals are equal in length
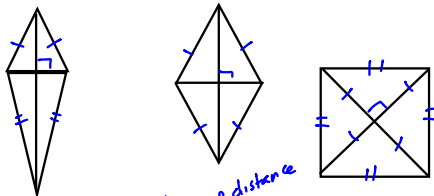Diagonals have same midpoint

Slide 4

In Parallelogram
same midpoint
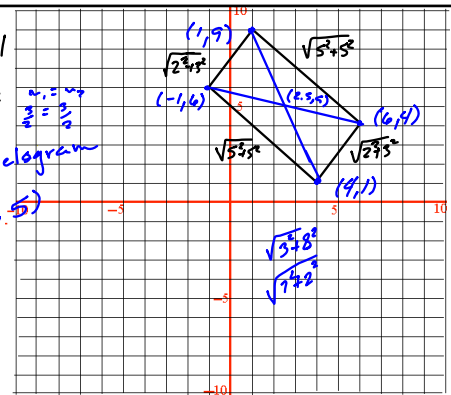↳ Rectangle
Rhombus
Square

Not same
midpoint

kite

Slide 5

kite - diagonals are
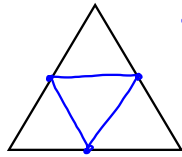perpendicular

kite   not same distance
not the same
midpoint

Slide 6

$\frac{9 - 4}{1 - b} = -1$

$m_1 = m_2$
$\frac{3}{3} = \frac{3}{3}$
$-1 = -1$

Parallelogram

(2.5, .5)

(1, 9) $\sqrt{5^2 + 5^2}$

$\sqrt{2^2 + 3^2}$

(-1, 6)   (4, 5.5)   (6, 4)

$\sqrt{5^2 + 5^2}$ $\sqrt{2^2 + 3^2}$
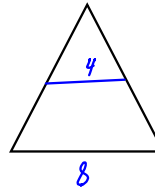
(4, 1)

$\sqrt{3^2 + 8^2}$
$\sqrt{7^2 + 2^2}$

Triangles
midsegments

connect midpoints
of 2 sides

midsegment is parallel
to the side its not connected
to.

Length of the
midsegment is
half the length of
the base

4

8