**Geometry Notes** Name Key

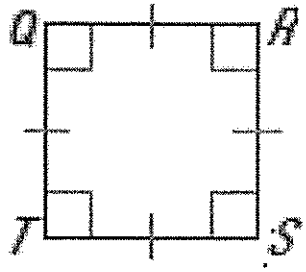
## 8.4 Properties of Squares Day 3

**A Square is a parallelogram with** 4 ≅ sides AND 4 right ∠s.

**A quadrilateral is a square if it is BOTH** a rhombus AND a rectangle

**List ALL of the properties of a SQUARE!**

1. Opposite sides are parallel.
2. Opposite sides are ≅.
3. Opposite ∠s are ≅.
4. Consecutive ∠s are supp.
5. the diagonals bisect each other
6. the diagonals bisect opp ∠s
7. the diagonals are perpendicular.
8. the diagonals are ≅.




### PRACTICE

1. **Draw square ABCD with diagonals intersecting at point E. If AD=6 find:**

a) $m\angle EDA$ 45°

b) $m\angle AEB$ 90°

c) $m\angle AEC$ 180°

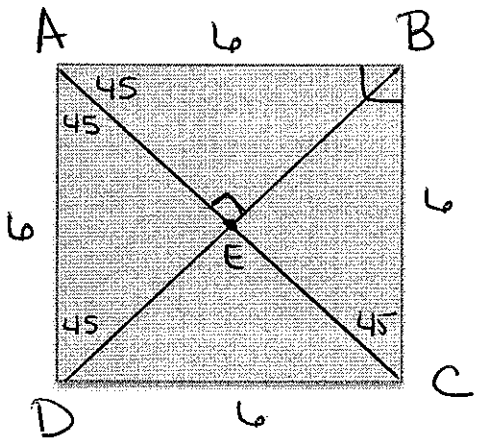
d) $m\angle ABC$ 90°

e) DC 6

f) AE $3\sqrt{2}$

g) AC $6\sqrt{2}$

h) BD $6\sqrt{2}$



**Read the following statements and decide if they are true or false.**
**If the statement is false, cross out a word and change it to make it a true statement.**

2. The diagonals of a parallelogram are congruent.

False — Rectangle / Square

3. A rhombus is a square.

False — Parallelogram

4. A square is a rectangle.

True

5. The consecutive angles of a rectangle are congruent.

True

6. The consecutive angles of a rhombus are congruent.

False — Rectangle / Square

7. Adjacent sides of a rectangle are congruent.

False — Rhombus / Square

8. The diagonals of a rectangle are perpendicular.

False — Rhombus / Square

9. Given the following coordinates determine the best name for the quadrilateral. Make a sketch, but also provide algebra to support your answer.
M(-4, -2), N(-1, 4), O(5, 1), P(2, -5)

$m\,MN = \frac{4+2}{3} = \frac{2}{1}$

$m\,OP = \frac{-6}{-3} = \frac{2}{1}$

$m\,NO = \frac{-3}{6} = -\frac{1}{2}$

$m\,MP = \frac{-3}{6} = -\frac{1}{2}$

$m\,NP = -\frac{9}{3} = -\frac{3}{1}$

$m\,MO = \frac{3}{9} = \frac{1}{3}$

Parallelogram ✓ → opp sides ∥
Rectangle ✓ → consec sides ⊥ (4 rt ∠s)
Rhombus ✓ → ⊥ diags
Square ✓ → both rect & rhom.