

Day 5 Practice: Triangles & Quadrilaterals

1. Given the vertices of $\triangle ABC$, A(-1, 1) B(2, 3) and C(1, -2):

1. Calculate the length and **slope** of each side.
2. Classify the triangle by its sides.
3. Tell if it is a right triangle.

Slopes:	Lengths:
AB: $\frac{2}{3}$	AB: 3.6
BC: $\frac{5}{1}$	BC: 5.04
CA: $-\frac{3}{2}$	CA: 3.6

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Two sides are the same length

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Type of Triangle: ISOSCELES \triangle Is it a right triangle? YES!

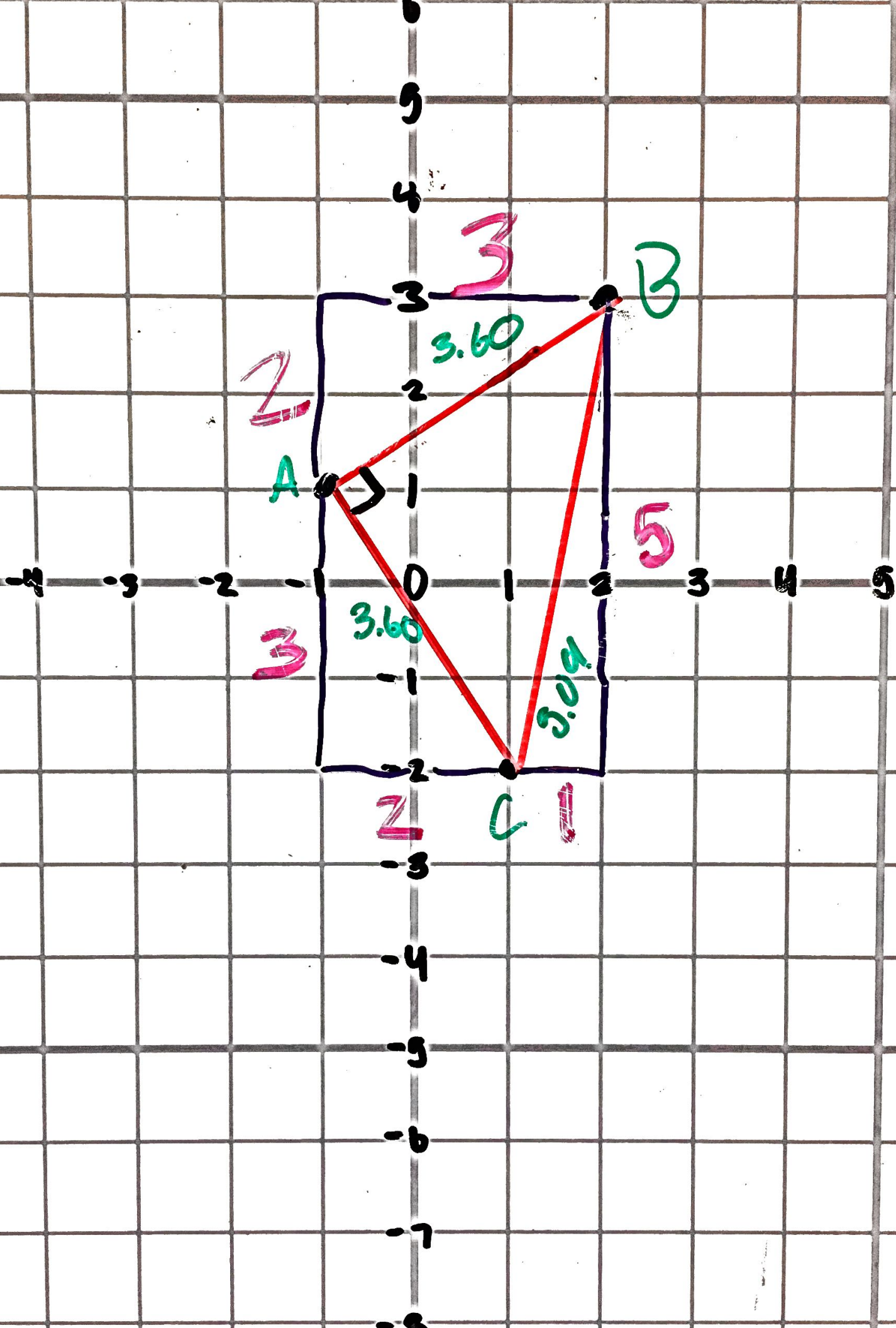
↑ Two slopes are opposite reciprocals.

2. Given $\triangle RST$, R(-2, 2), S(2, 3) and T(5,1)

Slopes:	Lengths:
RS: $\frac{1}{4}$	RS: 4.12
ST: $-\frac{2}{3}$	ST: 3.6
TR: $-\frac{1}{7}$	TR: 7.07

Type of Triangle: Scalene Is it a right triangle? NO!

↑ all 3 side lengths are different

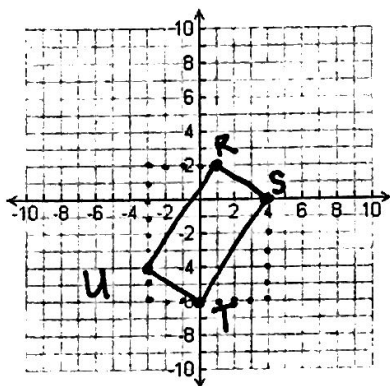




Scalene, all 3 lengths
are different

3. Given Quad RSTU with R(1, 2), S(4, 0), T(0, -6) and U(-3, -4)

Picture Sketch:



Slopes: $\frac{y_2 - y_1}{x_2 - x_1}$

Lengths:

RS: $\frac{0-2}{4-1} = -\frac{2}{3}$	RS: [scribble]
ST: $\frac{-6-0}{4-0} = -\frac{3}{2}$	ST: [scribble]
TU: $\frac{-2-(-6)}{-3-0} = \frac{4}{-3} = -\frac{4}{3}$	TU: [scribble]
UR: $\frac{2-(-4)}{1-(-3)} = \frac{6}{4} = \frac{3}{2}$	UR: [scribble]

Justify which type of quadrilateral this is using slopes and lengths:

All 4 right angles b/c I have opp. recip. slopes!

4. Given Quad ABCD with A(-1, 2), B(2, 4), C(5, 2) and D(2, 0)

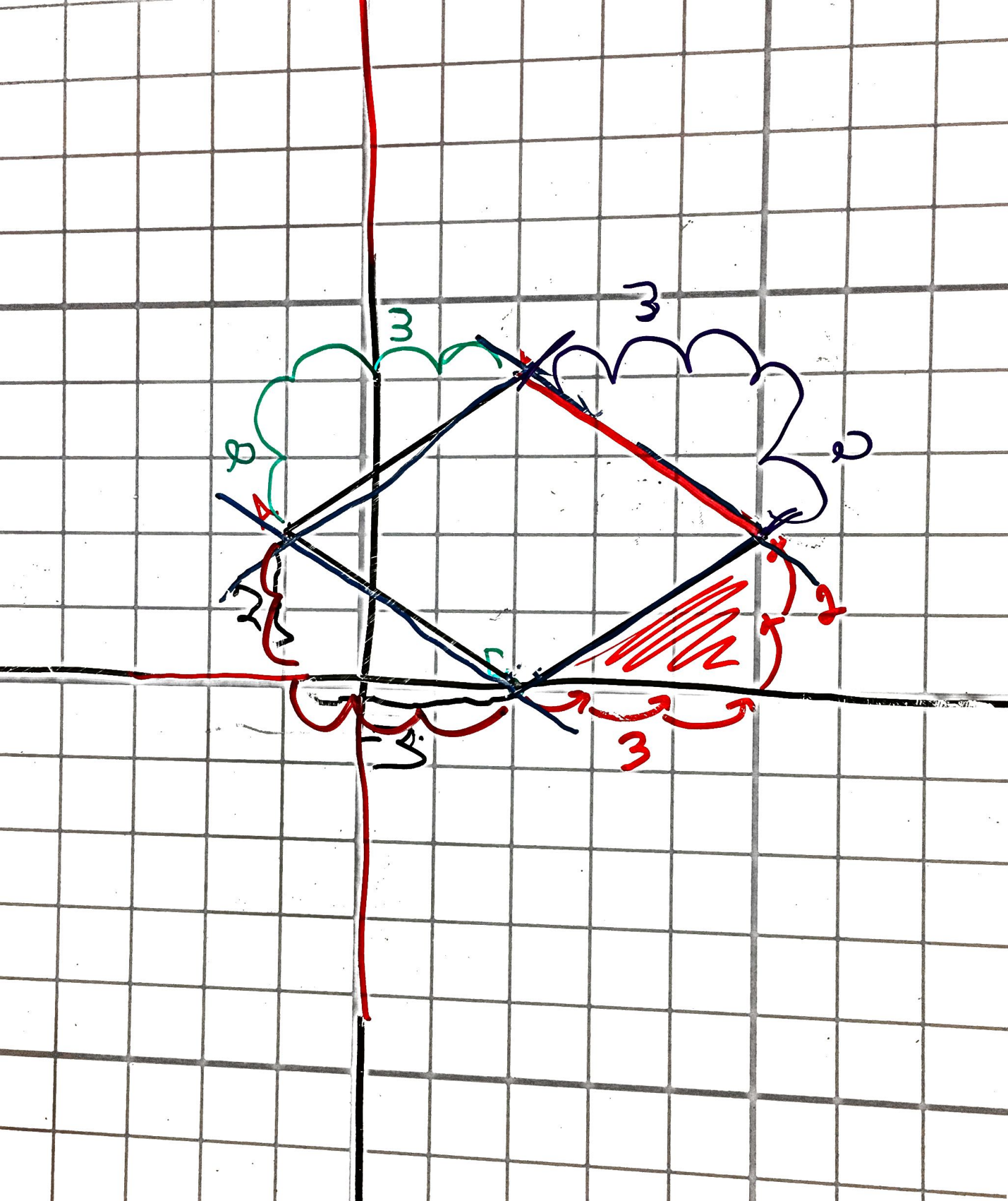
Slopes:

AB: $\frac{2}{3}$ BC: $-\frac{2}{3}$ CD: $\frac{2}{3}$ DA: $-\frac{2}{3}$

Lengths:

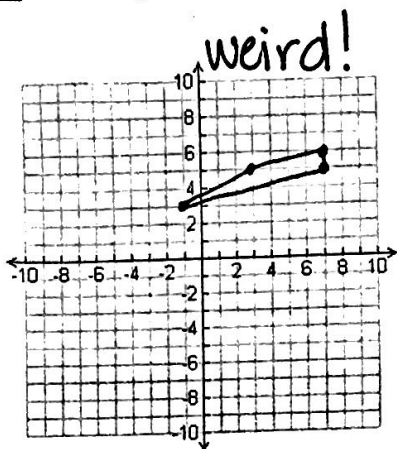
AB: 3.6 BC: 3.6 CD: 3.6 DA: 3.6

Type of Quadrilateral: Rhombus. All 4 sides are the same length. No right angles b/c slopes are not opposite reciprocals.



5. Given Quad **PARK**

P(7, 5), A(7,6), R(3,5) and K(-1,3)



Just a quadrilateral!

Slopes:

Lengths:

PA:	PA:
AR:	AR:
RK:	RK:
KP:	KP:

Type of Quadrilateral:

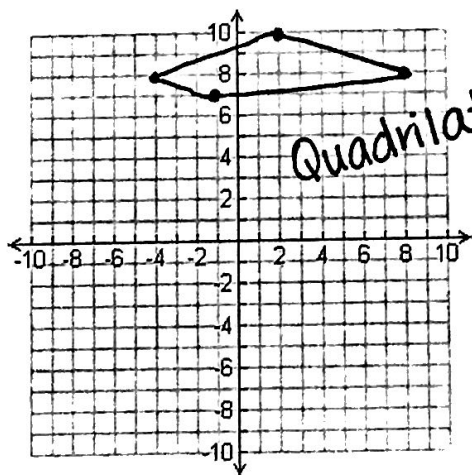
6. Given Triangle **CAT**

C(-3, 5), A(-3, 1), T(-1, 4)

Type of Triangle: Scalene.

7. Given Quad **WXYZ**

W(2, 10), X(-4,8), Y(-1,7) and Z(8,8)



$\frac{2}{1}, \frac{2}{1}, -\frac{1}{2}, -\frac{1}{2}$

8. W(5, 6), X(7,5), Y(9,9) and Z(7,10)

Rectangle!

Right angles b/c slopes are opposite reciprocals

