

## Handout 3: Let's Go Fly A Kite Answers

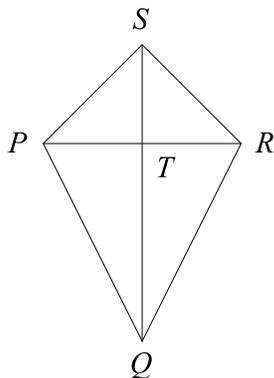


Figure 1

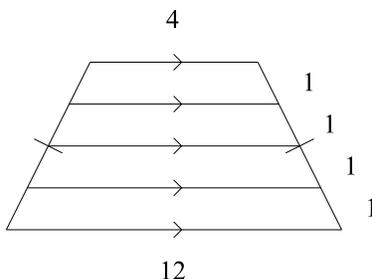


Figure 2

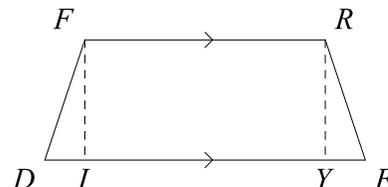


Figure 3

1. Can a trapezoid's bases ever be congruent? Why or why not?

No, a trapezoid's bases can never be congruent. If they were, the legs of the trapezoid would be congruent and parallel, which means we'd have a parallelogram and not a trapezoid.

2. How are a kite's diagonals related?

The main diagonal is the perpendicular bisector of the cross diagonal.

3. Can opposite sides of a kite be congruent? Why or why not?

Yep, they sure can. A kite has two pairs of consecutive congruent sides, so if the opposite sides are *also* congruent, we'd have four congruent sides. That still technically satisfies the definition of a kite, and it also gives us a specific type of kite: a rhombus.

For problems 4-6, refer to the kite in Figure 1.

4. If  $SQ = 11$  m,  $PR = 6$  m, and  $SR = 5$  m, what is the length of  $\overline{PQ}$ ?  
 $\sqrt{58} \approx 7.6$  m.
5. If  $m\angle PSQ = 50^\circ$  and  $m\angle PQS = 45^\circ$ , what is the measure of  $m\angle SRQ$ ?  
 $85^\circ$ .
6. If  $m\angle PQR = 76^\circ$ , what is the measure of  $m\angle PRQ$ ?  
 $52^\circ$ .

Use Figure 2 for questions 7-8.

7. What is the value of  $y$ ?  
 $y = 8$ .
8. What are the values of  $x$  and  $z$ ?  
 $x = 6$  and  $z = 10$ .

Use Figure 3 for questions 9-10.

9. If  $m\angle D = 73^\circ$  and  $m\angle E = 51^\circ$ , what are the measures of  $\angle R$  and  $\angle F$ ?

$m\angle F = 107^\circ$  and  $m\angle R = 129^\circ$ .

10. If  $FR = 7$  km,  $DE = 13$  km,  $YE = 3$  km, and the height of the trapezoid is 4 km, what is its perimeter?

30 km.