

## **UNIT 9: Quadrilaterals QUEST**

1. In parallelogram MATH, the measure of  $\angle T$  exceeds two times the measure of  $\angle H$  by 30. What is the measure of the largest angle of the parallelogram?
2. In parallelogram TRIG,  $m\angle R = 2x + 19$  and  $m\angle G = 4x - 17$ . What is  $m\angle T$ ?
3. The two diagonals of a rectangle ABCD intersect at point E. In addition,  $\angle AEB = 120^\circ$ . Find the measure of  $\angle ADE$ .
4. In rectangle QRST, diagonals QS and RT meet at point U. If the measure of  $QU = 3x + 4$  and  $US = x + 20$ , what are the value of  $x$  and the lengths of  $QU$ ,  $QS$ , and  $RT$ ?
5. In rhombus ABCD, the measure of  $\angle ABC = 120^\circ$ . If  $AB = 10$  find the length of the shorter diagonal  $BD$ .

6. TOMA is a square. If the measure of  $\angle TOM = 3x - 9$ , find the value of  $x$ .
  
  
  
  
  
  
  
  
  
  
7. ABCD is a square. If the measure of diagonal  $AC = 52$ , what is the length of a side?
  
  
  
  
  
  
  
  
  
  
8. In isosceles trapezoid MIKE,  $\angle K$  and  $\angle E$  are the base angles. If  $IK = 11$  and  $ME = 3x - 1$ , what is the value of  $x$ ?
  
  
  
  
  
  
  
  
  
  
9. The bases of an isosceles trapezoid ABCD measure 10 cm and 20 cm. The height (altitude) is 12 cm. How long are the legs AB and CD?
  
  
  
  
  
  
  
  
  
  
10. In trapezoid ABCD,  $m\angle ABD = 30$ ,  $m\angle BDC = 30$ ,  $m\angle ADB = 40$ ,  $m\angle BCD = 70$ ,  $AD = x + 5$ , and  $BC = 3x - 21$ . What are the lengths of sides AD and BC?