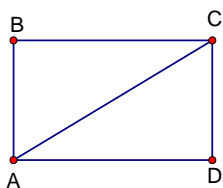


Trapezoid and Isosceles Trapezoid Properties Worksheet

1. Which statement is true?
 - (1) All parallelograms are quadrilaterals
 - (2) All parallelograms are rectangles
 - (3) All quadrilaterals are trapezoids
 - (4) All trapezoids are parallelograms
2. Which quad does not have congruent diagonals?
 - (1) an isosceles trapezoid
 - (2) a rhombus
 - (3) a rectangle
 - (4) a square

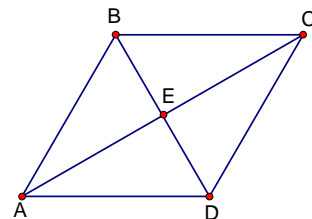
3. In rectangle ABCD, diagonal \overline{AC} is drawn. Which is always true?

- (1) $\overline{AB} \cong \overline{AC}$
- (2) $\overline{AB} \cong \overline{AD}$
- (3) $\angle DAC \cong \angle BAC$
- (4) $\triangle DAC \cong \triangle BAC$

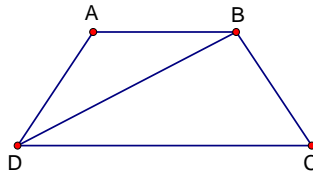


4. In rhombus ABCD, diagonals \overline{AC} and \overline{BD} intersect at E. Which statement is *not* true?

- (1) $\triangle AEB \cong \triangle BEC$
- (2) $\overline{AE} \cong \overline{ED}$
- (3) $\overline{AB} \cong \overline{BC}$
- (4) $\triangle ABD \cong \triangle CBD$



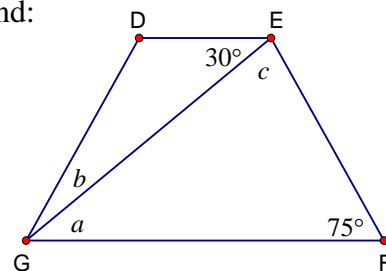
5. In isosceles trapezoid DEFG, with bases \overline{DE} and \overline{FG} , $m\angle F = (7x - 1)^\circ$ and $m\angle G = (5x + 13)^\circ$. Find $m\angle E$.



6. In isosceles trapezoid ABCD, diagonal \overline{BD} is drawn. If $m\angle ABD = \left(\frac{1}{3}x + 35\right)^\circ$ and $m\angle BDC = (x + 5)^\circ$, find $m\angle ABD$.

7. In isosceles trapezoid QRST, \overline{RS} and \overline{TQ} are the bases. If $QR = 3x + 15$ and $ST = 5x + 8$, find the value of x .

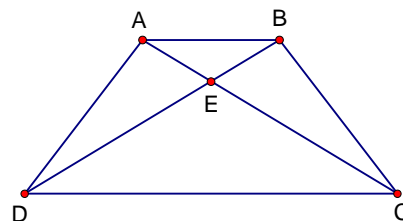
8. In isosceles trapezoid DEFG, $\overline{DE} \parallel \overline{FG}$ and \overline{EG} is a diagonal. Find:
 - a) $m\angle a =$
 - b) $m\angle b =$
 - c) $m\angle c =$



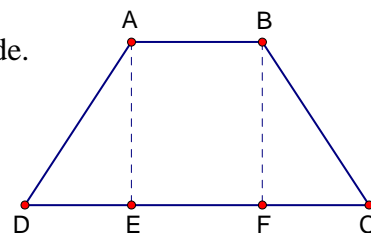
9. In which quadrilaterals are the diagonals congruent, but do not bisect each other?
 - (1) a square
 - (2) a rhombus
 - (3) a rectangle
 - (4) an isosceles trapezoid

10. In the diagram of isosceles trapezoid ABCD, diagonals \overline{AC} and \overline{BD} intersect at E. Which statement is always true?

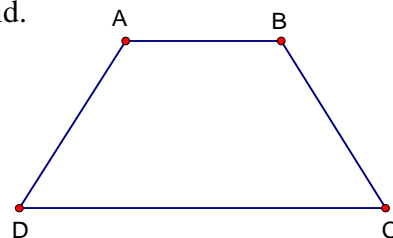
- (1) $\overline{AE} \cong \overline{EC}$ (3) $\triangle ACD \cong \triangle BDC$
 (2) $\triangle AEB$ is a right triangle (4) $\overline{AD} \parallel \overline{BC}$



11. In isosceles trapezoid ABCD, altitudes \overline{AE} and \overline{BF} are drawn from base \overline{AB} to \overline{DC} . If $AB = 6$, $DC = 30$, and $AD = 15$, find the length of an altitude.



12. In isosceles trapezoid ABCD, altitudes \overline{AE} and \overline{BF} are drawn from base \overline{AB} to \overline{DC} . If $AB = 10$, $DC = 22$, and $AE = 12$, find the length of a leg of the trapezoid.



13. (H) In isosceles trapezoid ABCD, \overline{AB} and \overline{CD} are the bases. If $\overline{AD} = 3x^2 - 9x - 22$ and $\overline{BC} = 2x + 20$. Find x and the length of \overline{AD} .

14. (H) In an isosceles trapezoid, the length of an altitude drawn to the base is $5\sqrt{3}$ in. If the shorter base and longer base measure $6\sqrt{5}$ in and $16\sqrt{5}$ in respectively, find the length of a leg of the trapezoid.