

1. Which equation represents a line perpendicular to the line whose equation is $2x + 3y = 12$?

- (1) $6y = -4x + 12$
- (2) $2y = 3x + 6$
- (3) $2y = -3x + 6$
- (4) $3y = -2x + 12$

2. If p represents “All sides are congruent” and q represents “All angles are congruent,” then for which figure will the statement $p \wedge q$ be true?

- (1) rectangle
- (2) rhombus
- (3) square
- (4) trapezoid

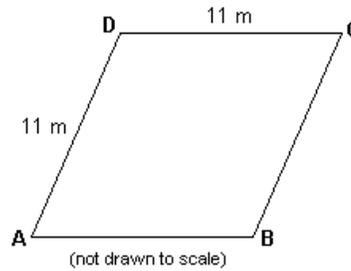
3. If the coordinates of P are $(-2, 7)$, what are the coordinates of $(D_2 \circ r_{y=x})(P)$?

- (1) $(4, -14)$
- (2) $(-4, 14)$
- (3) $(-14, 4)$
- (4) $(14, -4)$

4. Which statement is *always* true?

- (1) Rhombuses are squares.
- (2) Parallelograms are rectangles.
- (3) Rectangles are squares.
- (4) Squares are rectangles.

5.



A plot of land is in the shape of rhombus $ABCD$ as shown in the accompanying diagram. Which can *not* be the length of diagonal \overline{AC} ?

- (1) 24 m
- (2) 11 m
- (3) 18 m
- (4) 4 m

6. A pair of parallel lines can be the result of which of the following?

- (1) The intersection of two planes
- (2) The intersection of three planes
- (3) The intersection of a plane with two other parallel planes
- (4) The intersection of two parallel lines and a plane

7. Given the statement: “A right angle measures 90° .” How is this statement written as a biconditional?

- (1) If an angle is a right angle, then it measures 90° .
- (2) An angle is a right angle if, and only if, it measures 90° .
- (3) An angle measures 90° and it is a right angle.
- (4) If an angle does not measure 90° , then it is not a right angle.

Short Answer

Please show all work on a separate piece of paper and/or graph paper.

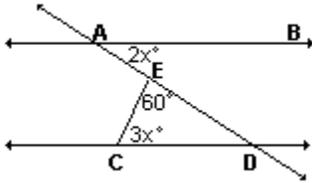
8. The diagonals of a rhombus have lengths of 12 centimeters and 16 centimeters. What is the length of one side of the rhombus?

9. In parallelogram $DATE$, $m\angle D = 8x - 20$ and $m\angle A = 2x + 30$. Find x .

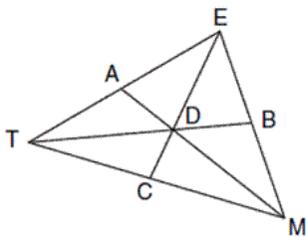
10. Write a single translation that is equivalent to $T_{3, -1}$ followed by $T_{-5, 5}$.

11. The graphs of the equations $y = x^2 + 4x - 1$ and $y + 3 = x$ are drawn on the same set of axes. At which point(s) do the graphs intersect?

12. In the diagram, $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$, \overleftrightarrow{AED} is a transversal, and \overleftrightarrow{CE} is drawn. If $m\angle CED = 60$, $m\angle DAB = 2x$, and $m\angle DCE = 3x$, find x .



13. In the diagram below of $\triangle TEM$, medians \overline{TB} , \overline{EC} , and \overline{MA} intersect at D , and $TB = 9$. Find the length of \overline{TD} .



14. The coordinates of quadrilateral $ABCD$ are $A(-1, -5)$, $B(8, 2)$, $C(11, 13)$, and $D(2, 6)$. Prove $ABCD$ is a rhombus. (Use graph paper to plot the points)