

Accelerated Geometry Midterm Review 1

Given the following lengths determine whether they can be the sides of a triangle.

- a. 9, 9, 16 b. .8, 1.5, 1.7 c. 6, 10, 18 d. 4, 5, 8

yes

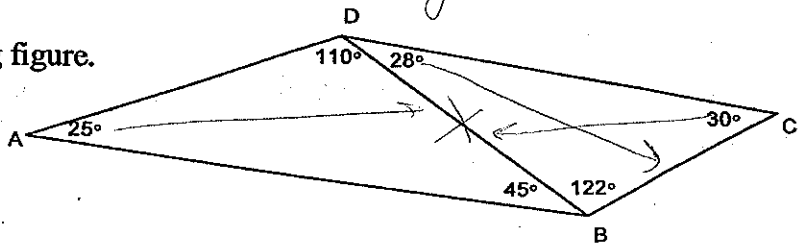
yes

No

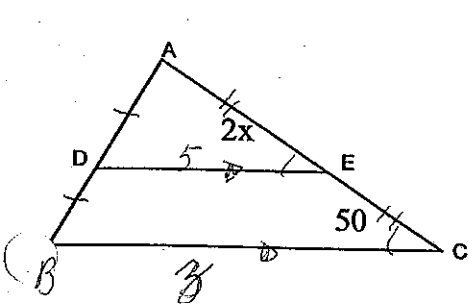
yes

2. Find the shortest segment in the following figure.

\overline{BC}



3. Given D and E are midpoints of the respective sides. Find BC if $DE = 5$ and the value of x .



$BC = 10$

$2x = 50$

$x = 25$

4. Three times an angle is 10 less than its complement. Write an equation and find the measure of the angle.

Let $x = \text{angle}$

$3x = (90 - x) - 10$

$3x = 80 - x$

$4x = 80$

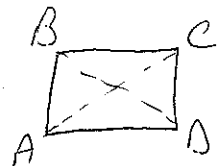
$x = 20$

5. If \overline{AC} and \overline{BD} are diagonals of a rectangle, which of the following must be true.

A. $\overline{AC} \perp \overline{BD}$

B. $\overline{AC} \cong \overline{BD}$

C. \overline{AC} and \overline{BD} bisect each other.



6. Find the measure of an exterior angle of a regular octagon.

$\frac{360}{8} = 45^\circ$

7. Write the converse, inverse and contrapositive of the statement:

If two angles of a triangle are congruent, then the sides opposite them are congruent.

Converse: If the sides opp 2 \angle 's are \cong , then the \angle 's of a \triangle are \cong

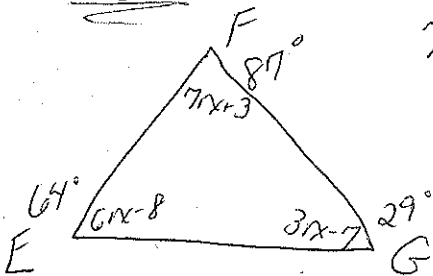
Inverse: If 2 \angle 's of a \triangle are not \cong , then sides opp them are not \cong .

Contra(+): If the sides opp 2 \angle 's are not \cong , then the \angle 's of a \triangle are not \cong .

8. Find the slope of the line passing through $(-2, 8)$ and $(6, 8)$.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{8 - 8}{6 - (-2)} = \frac{0}{8} = \boxed{0}$$

9. In $\triangle EFG$, $m\angle E = 6x - 8$, $m\angle F = 7x + 3$, and $m\angle G = 3x - 7$. List the sides in order from longest to shortest.



$$7x + 3 + 3x - 7 + 6x - 8 = 180$$

$$16x - 12 = 180$$

$$16x = 192$$

$$x = 12$$

$$\boxed{EG > FG > EF}$$

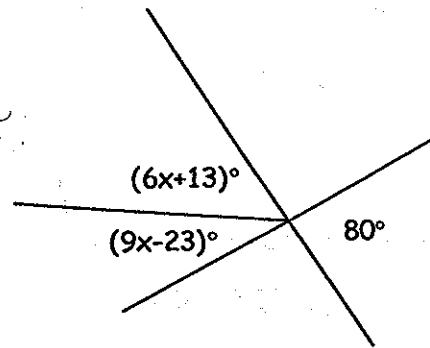
10. Find the value of x . Vertical \angle 's are \cong .

$$6x + 13 + 9x - 23 = 80$$

$$15x - 10 = 80$$

$$15x = 90$$

$$\boxed{x = 6}$$



11. Find the measure of one interior angle of a regular dodecagon. 12

$$\frac{360}{12} = 30 \text{ ext } \angle \therefore 180 - 30 = \boxed{150^\circ}$$

$$S = \frac{180(12-2)}{12} = \frac{180(10)}{12} = \frac{1800}{12} = \boxed{150^\circ}$$