

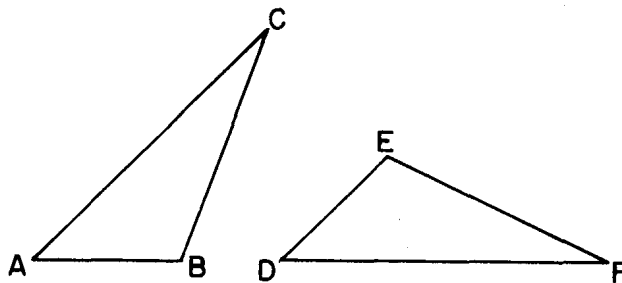
1. Two triangles are congruent if

- (1) corresponding angles are congruent
- (2) corresponding sides and corresponding angles are congruent
- (3) the angles in each triangle have a sum of 180°
- (4) corresponding sides are proportional

2. The endpoints of \overline{CD} are $C(-2,4)$ and $D(6,2)$. What are the coordinates of the midpoint of \overline{CD} ?

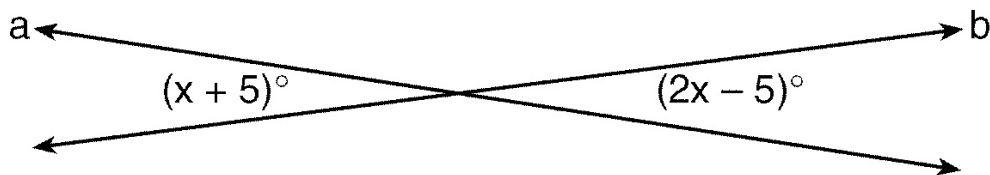
- (1) $(2, -1)$ (2) $(4, -2)$ (3) $(4, 3)$ (4) $(2, 3)$

3. In the accompanying diagram, $\triangle ABC$ and $\triangle DEF$ are triangles with $\angle A \cong \angle D$, and $\overline{AC} \cong \overline{DF}$. Which statement is sufficient to prove $\triangle ABC \cong \triangle DEF$?



- (1) $\angle C \cong \angle F$ (2) $\angle C \cong \angle E$ (3) $\overline{CB} \cong \overline{EF}$ (4) $\overline{AC} \parallel \overline{DE}$

4. In the accompanying diagram, line a intersects line b .



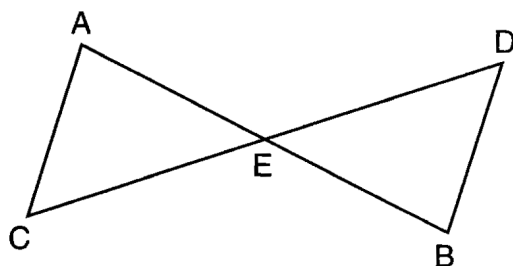
What is the value of x ?

- (1) -10 (2) 5 (3) 10 (4) 90

5. A line segment has endpoints (4,7) and (1,11). What is the length of the segment?

- (1) 5 (2) 7 (3) 16 (4) 25

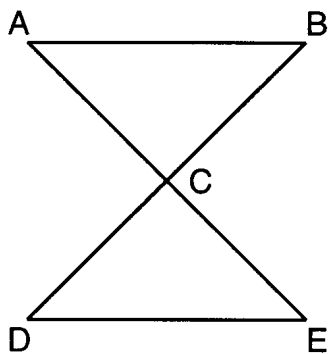
6. In the diagram below, $\triangle AEC \cong \triangle BED$



Which statement is *not* always true?

- (1) $\overline{AC} \cong \overline{BD}$ (2) $\overline{CE} \cong \overline{DE}$
(3) $\angle EAC \cong \angle EBD$ (4) $\angle ACE \cong \angle DBE$

7. Base your answer to the following question on the accompanying diagram, \overline{ACE} , \overline{BCD} , \overline{AB} , and \overline{DE} , $\angle A \cong \angle E$, and C is the midpoint of \overline{AE} .



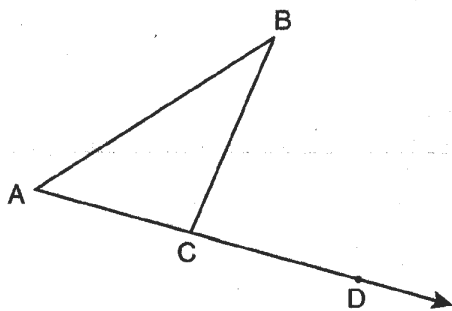
Which theorem justifies $\triangle ABC \cong \triangle EDC$?

- (1) SSS \cong SSS (2) SAS \cong SAS
(3) ASA \cong ASA (4) SSA \cong SSA

8. Line segment AB has endpoints $A(2,-3)$ and $B(-4,6)$. What are the coordinates of the midpoint of \overline{AB} ?

- (1) $(-2,3)$ (2) $(-1,1\frac{1}{2})$ (3) $(-1,3)$ (4) $(3,4\frac{1}{2})$

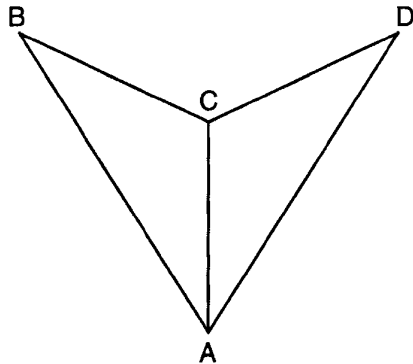
10. Base your answer to the following question on the diagram below, $\triangle ABC$ is shown with \overline{AC} extended through point D .



If $\angle BCD = 6x + 2$, $\angle BAC = 3x + 15$, and $\angle ABC = 2x - 1$, what is the value of x ?

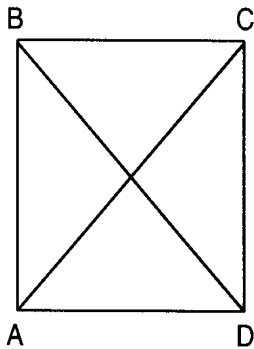
- (1) 12 (2) $14\frac{10}{11}$ (3) 16 (4) $18\frac{1}{9}$
11. When writing a geometric proof, which angle relationship could be used alone to justify that two angles are congruent?
- (1) supplementary angles (2) linear pair of angles
(3) adjacent angles (4) vertical angle
12. Which point is closest to the origin?
- (1) (5,12) (2) (6,8) (3) (10,4) (4) (0,9)

13. Base your answer to the following question on the diagram below, \overline{AC} bisects $\angle BAD$ and $\angle B \cong \angle D$.



Which method could be used to prove $\triangle ABC \cong \triangle ADC$?

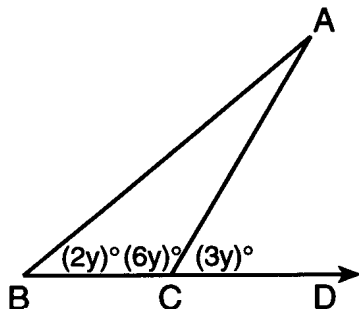
- (1) SSS (2) AAA (3) SAS (4) AAS
14. Base your answer to the following question on In the accompanying diagram of rectangle ABCD, $m\angle BAC = 3x + 5$ and $m\angle ACD = x + 37$.



What is $m\angle CAD$?

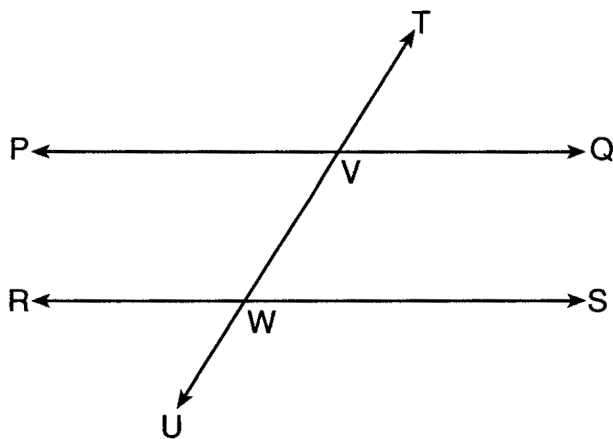
- (1) 16 (2) 37 (3) 50 (4) 53
15. A line segment has endpoints $A(7,-1)$ and $B(-3,3)$. What are the coordinates of the midpoint of \overline{AB} ?
- (1) (1,2) (2) (2,1) (3) (-5,2) (4) (5,-2)

16. Base your answer to the following question on In the accompanying diagram of $\triangle ABC$, side \overline{BC} is extended to D , $m\angle B = 2y$, $m\angle BCA = 6y$, and $m\angle ACD = 3y$.



What is $m\angle B$?

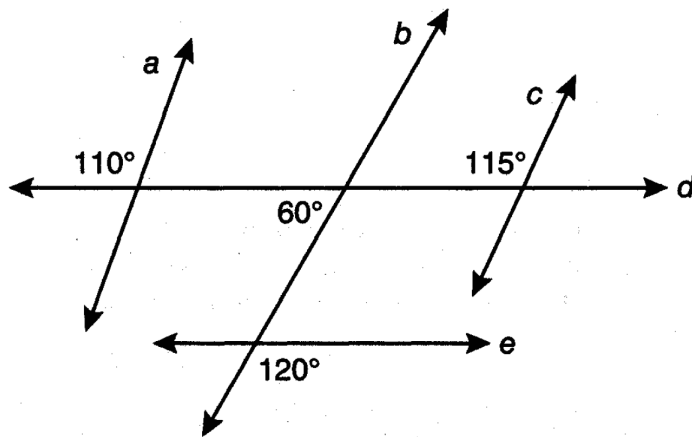
- (1) 15 (2) 17 (3) 20 (4) 40
17. In the diagram below, transversal \overleftrightarrow{TU} intersects \overleftrightarrow{PQ} and \overleftrightarrow{RS} at V and W , respectively.



If $m\angle TVQ = 5x - 22$ and $m\angle VWS = 3x + 10$. For which value of x is $\overleftrightarrow{PQ} \parallel \overleftrightarrow{RS}$?

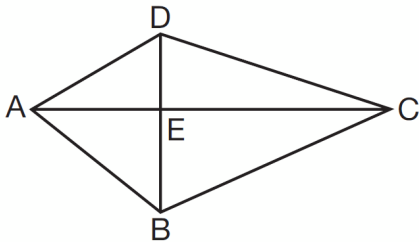
- (1) 6 (2) 16 (3) 24 (4) 28

19. Based on the diagram below, which statement is true?



- (1) $a \parallel b$ (2) $a \parallel c$ (3) $b \parallel c$ (4) $d \parallel e$

20. In the diagram below of quadrilateral $ABCD$, diagonals \overline{AEC} and \overline{BED} are perpendicular at E .



Which statement is always true based on the given information?

- (1) $\overline{DE} \cong \overline{EB}$ (2) $\overline{AD} \cong \overline{AB}$
 (3) $\angle DAC \cong \angle BAC$ (4) $\angle AED \cong \angle CED$

22. What is the equation of a line passing through the point (6,1) and parallel to the line whose equation is $3x = 2y + 4$?

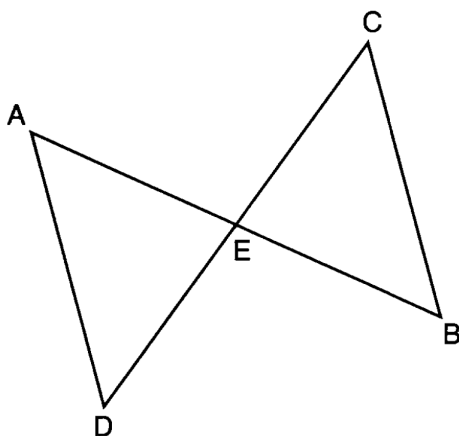
(1) $y = -\frac{2}{3}x + 5$

(2) $y = -\frac{2}{3}x - 3$

(3) $y = \frac{3}{2}x - 8$

(4) $y = \frac{3}{2}x - 5$

23. In the diagram below of $\triangle DAE$ and $\triangle BCE$, \overline{AB} and \overline{CD} intersect at E , such that $\overline{AE} \cong \overline{CE}$ and $\angle BCE \cong \angle DAE$.



Triangle DAE can be proved congruent to triangle BCE by

(1) ASA

(2) SAS

(3) SSS

(4) HL

24. Of the following, which equation represents a line that is parallel to the line whose equation is $3x + 2y = 7$?

(1) $y = -\frac{3}{2}x + 5$

(2) $y = -\frac{2}{3}x + 4$

(3) $y = \frac{3}{2}x - 5$

(4) $y = \frac{2}{3}x - 4$