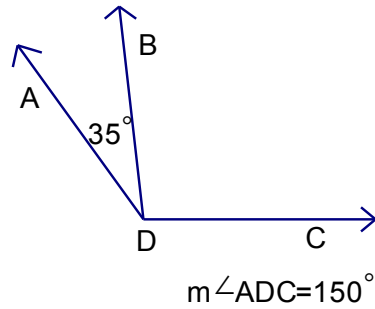


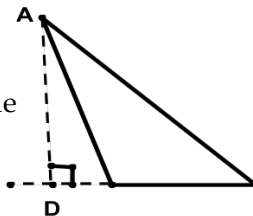
1. Find $m\angle BDC$.

- a) 185°
- b) 115°
- c) 25°
- d) 175°
- e) 100°

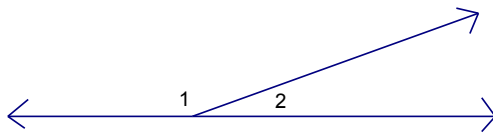


2. For the following figure, identify \overline{AD} as a(n)

- a) Altitude
- b) Median
- c) Neither a Median nor an Altitude
- d) Both a Median and an Altitude



3. If $m\angle 2 = 35^\circ$, then $m\angle 1 = ?$



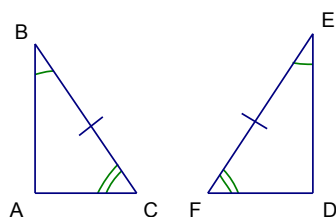
- a) 35°
- b) 70°
- c) 90°
- d) 145°
- e) 55°

4. The measure of one angle of a triangle is 115. The other two angles are congruent. Find their measures.

- a) 65
- b) 115
- c) 32.5
- d) 35
- e) None of the above

5. Decide which Postulate can be used to prove that the triangles below are congruent.

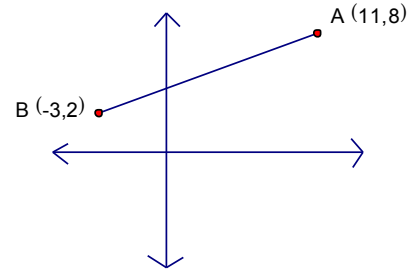
- a) SSS
- b) SAS
- c) ASA
- d) HL
- e) None of the above



6. N, the midpoint of \overline{AB} , has coordinates (x, y) .

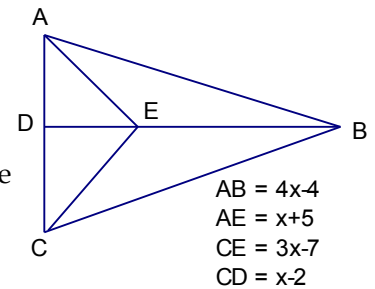
Find $x + y$.

- a) 7
- b) 12
- c) 5
- d) 2
- e) None of the above



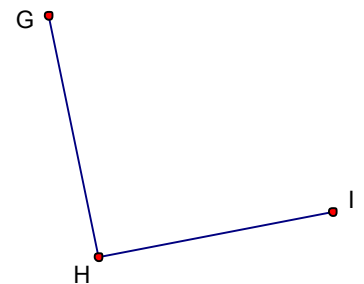
7. Given: \overline{BE} is the \perp bisector of \overline{AC} . Find the perimeter of $\triangle ABC$

- a) 18
- b) 48
- c) 6
- d) 3
- e) None of the above



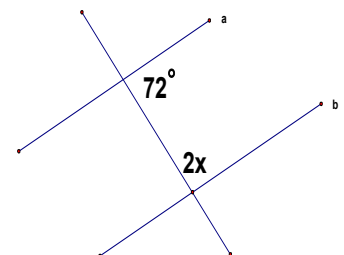
8. In the picture, $\overline{GH} \perp \overline{HI}$ and \overline{GH} has a slope of $\frac{7}{8}$. What is the slope of \overline{HI} ?

- a) $\frac{7}{8}$
- b) $\frac{8}{7}$
- c) $-\frac{7}{8}$
- d) $-\frac{8}{7}$



9. Solve for x if a is parallel to b .

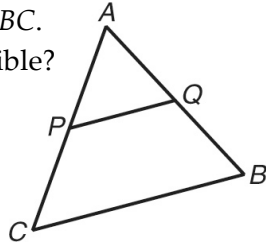
- a) 54
- b) 9
- c) 36
- d) 180



10. PQ is a midsegment of $\triangle ABC$.

Which statement is impossible?

- a) $AP = PC$
- b) $PQ = BC$
- c) $PQ \parallel BC$
- d) $\angle A \cong \angle APQ$



11. Find n , $\frac{n+7}{8} = \frac{n+1}{4}$

- a) 10
- b) 8
- c) 4
- d) 5

12. Two angles are supplementary. One angle has a measure that is three times the other angle. What is the measure of the smaller angle?

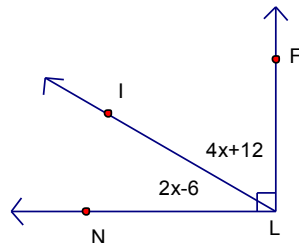
- a) 15
- b) 30
- c) 45
- d) 135
- e) 75

13. Point I is between W and N. Use the segment subtraction postulate to solve for \overline{IN} when $WN = 4x - 6$, $WI = 2x + 3$, and $WN = 22$.

- a) 28
- b) 17
- c) 7
- d) 5
- e) 23

14. Find $m\angle FLI$

- a) 18
- b) 30
- c) 90
- d) 84
- e) None of the above

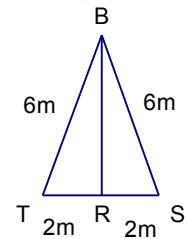


15. What is the image of $(-6, 3)$ when it is rotated 90° counter-clockwise about the origin?

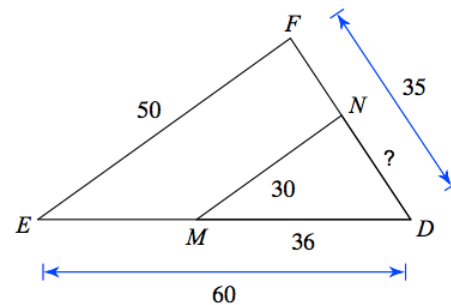
- a) $(-6, -3)$
- b) $(-3, 6)$
- c) $(6, -3)$
- d) $(3, 6)$
- e) None of the above

16. Decide which Postulate can be used to prove that the triangles below are congruent.

- a) SSS
- b) SAS
- c) ASA
- d) HL
- e) None of the above



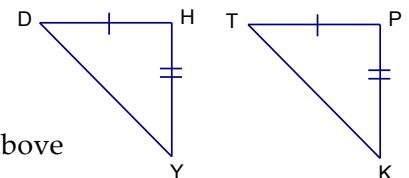
17. Given $\triangle DNM \sim \triangle DFE$. Find ND.



- a) 12
- b) 21
- c) 30
- d) 29

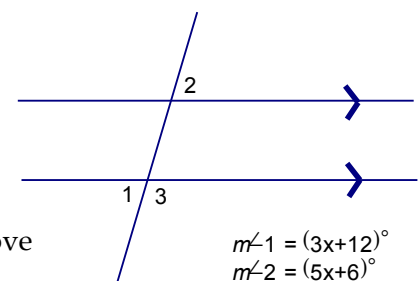
18. Decide which Postulate can be used to prove that the triangles below are congruent.

- a) SSS
- b) SAS
- c) ASA
- d) HL
- e) None of the above



19. Find $m\angle 3$.

- a) 3°
- b) 177°
- c) 159°
- d) 21°
- e) None of the above



$$m\angle 1 = (3x+12)^\circ$$

$$m\angle 2 = (5x+6)^\circ$$

20. One of two complements of an angle is 6° less than twice the measure of the angle itself. Find the measure of the larger angle.

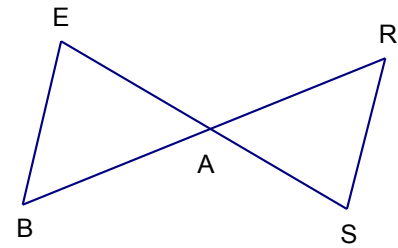
- a) 32°
- b) 62°
- c) 28°
- d) 84°
- e) 58°

Use the two-column proof below to answer questions 21-24.

Given: A is the midpoint of \overline{ES}

\overline{ES} bisects \overline{BR}

Prove: $\overline{BE} \cong \overline{RS}$



Statements	Reasons
1. A is the midpoint of \overline{ES}	1. Given
2. \overline{ES} bisects \overline{BR}	2. Given
3.	3. If a point is a midpoint, then it divides a segment into 2 congruent segments.
4. $\overline{BA} \cong \overline{AR}$	4. If a segment is bisected, then it is split into 2 congruent segments
5. $\angle EAB \cong \angle RAS$	5.
6. $\triangle EAB \cong \triangle SAR$	6.
7. $\overline{BE} \cong \overline{RS}$	7. CPCTC

21. What is the missing statement for step 3?

- a) $\angle A \cong \angle A$
- b) $\overline{EA} \cong \overline{AS}$
- c) $\overline{BE} \cong \overline{RS}$
- d) $\overline{EA} \cong \overline{AR}$

22. What is the reason for step 5?

- a) Complementary angles are congruent
- b) All right angles are congruent
- c) Definition of angle bisector
- d) Vertical angles are congruent

23. What is the reason for step 6?

- a) HL (3, 5, 4)
- b) SAS (5, 3, 4)
- c) SAS (3, 5, 4)
- d) ASA (5, 3, 4)

24. What else is true?

- a) $\overline{ES} \perp \overline{BR}$
- b) $\overline{BA} \cong \overline{AS}$
- c) $\angle E \cong \angle R$
- d) $\overline{EB} \parallel \overline{RS}$

25. A triangle with no congruent sides is called a(n) _____ triangle.

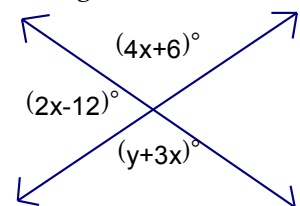
- a) Scalene
- b) Equilateral
- c) Isosceles
- d) Equiangular
- e) None of the above

26. \overline{ST} has endpoints $(3, -12)$ and $(-6, 6)$ on the coordinate plane. Find the slope of \overline{ST} .

- a) $\frac{1}{9}$
- b) -9
- c) -2
- d) $-\frac{1}{2}$
- e) None of the above

27. Solve for x and y in the diagram.

- a) $x = 31, y = 37$
- b) $x = 50, y = 56$
- c) $x = 37, y = 31$
- d) $x = 9, y = 15$
- e) Not enough information

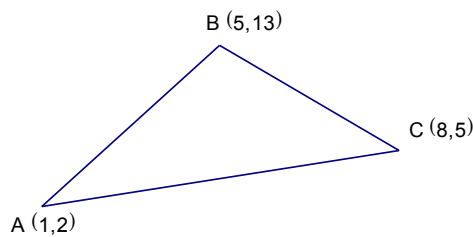


28. Which of the following is not a method for proving two triangles congruent?

- a) AAS
- b) ASA
- c) SAS
- d) SSS
- e) AAA

29. Find the midpoint of \overline{BC} .

- a) $(5, 13)$
- b) $(9, \frac{13}{2})$
- c) $(8, 5)$
- d) $(\frac{13}{2}, 9)$
- e) $(1, 2)$



30. The measure of the three angles of a triangle are in the ratio of 2:3:5 respectively. What is the measure of the largest angle?

- a) 36°
- b) 54°
- c) 90°
- d) 126°
- e) 150°

31. Two sides of a triangle have lengths 14 and 18. Which of the following could not be the length of the third side?

- a) 10
- b) 16
- c) 20
- d) 26
- e) 4

32. Given $\angle 1 \cong \angle 2$ and $m\angle 1 = (x^2)^\circ$ and $m\angle 2 = (5x + 6)^\circ$ Find the product of the solutions.

- a) -6
- b) -5
- c) 6
- d) 2
- e) 3

33. The reasons given in the proof below are correct, but they are in the wrong order. List them in the correct order.

Given: \overline{AE} bisects $\angle GAC$

$$\overline{AG} \cong \overline{AC}$$

Prove: $\overline{GE} \cong \overline{CE}$

Statements

Reasons

1. \overline{AE} bisects $\angle GAC$; a. CPCTC

$$\overline{AG} \cong \overline{AC}$$

2. $\angle GAE \cong \angle CAE$

b. Reflexive Property

$$\overline{AE} \cong \overline{AE}$$

c. If an angle is bisected, then it is divided into two congruent angles

4. $\triangle AGE \cong \triangle ACE$

d. Given

$$\overline{GE} \cong \overline{CE}$$

e. SAS Postulate

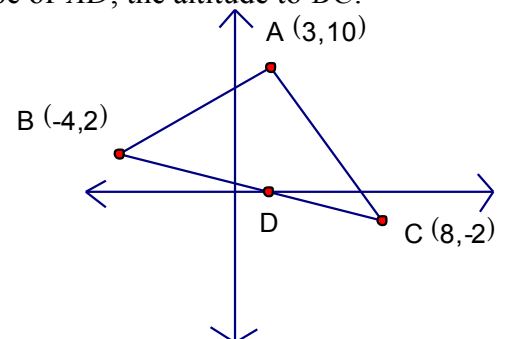
- a) d, c, b, e, a
- b) a, b, c, e, d
- c) d, b, c, e, a
- d) d, e, c, b, a
- e) c, d, e, a, b

34. Which line is perpendicular to $y = -2x - \frac{1}{2}$?

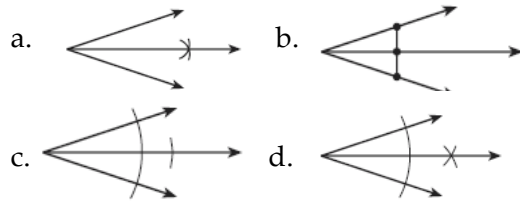
- a) $y = 2x + \frac{1}{2}$
- b) $y = -2x + 2$
- c) $y = \frac{1}{2}x - \frac{1}{2}$
- d) $y = -\frac{1}{2}x + \frac{1}{2}$
- e) $y = -\frac{1}{2}x - \frac{1}{2}$

35. Find the slope of \overline{AD} , the altitude to \overline{BC} .

- a) $\frac{1}{3}$
- b) 0
- c) $-\frac{1}{3}$
- d) 3
- e) -3



36. Which diagram below shows the correct construction using only a compass and a straightedge to bisect an angle?

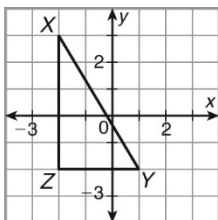


e. None of the above

37. If the image of a figure is an isometry, which of the following may have been performed?

- Translation
- Rotation
- Reflection
- All of the above
- None of these

38. $\triangle XYZ$ is reflected across the y -axis. Then its image is rotated 180° counterclockwise about the origin. What are the coordinates of the final image of point X under the composition of transformations?



- $(-3, -2)$
- $(3, 2)$
- $(2, 3)$
- $(-2, -3)$
- None of these

39. What is the mean proportional between 10, 6.

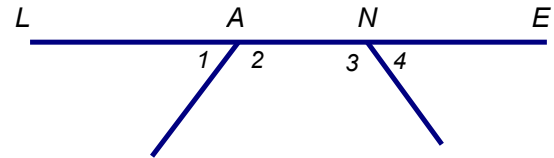
- 8
- $\sqrt{60}$
- $\pm\sqrt{60}$
- $\pm 4\sqrt{15}$
- $\pm 2\sqrt{15}$

40. Select the answer choice that corresponds to the missing reasons in the following proof.

Given: Diagram as shown.

$$\angle 1 \cong \angle 4$$

Prove: $\angle 2 \cong \angle 3$



Statements	Reasons
1. Diagram as shown, $\angle 1 \cong \angle 4$	1. Given
2. $\angle 1$ supp $\angle 2$, $\angle 3$ supp $\angle 4$	2. ?
3. $\angle 2 \cong \angle 3$	3. ?
a) 2. "angles supplementary to supplementary angles are supplementary" 3. "definition of congruence"	
b) 2. "assumed from diagram" 3. "angles supplementary to the same angle are congruent"	
c) 2. "Parallel lines \Rightarrow consecutive exterior angles supplementary" 3. "angles supplementary to congruent angles are congruent"	
d) 2. "assumed from diagram" 3. "Parallel lines \Rightarrow corresponding angles congruent"	
e) 2. "assumed from diagram" 3. "angles supplementary to congruent angles are congruent"	

41. If a triangle has vertices of $A(2, 4)$, $B(6, -3)$ and $C(0,0)$, what would be the image points under the vector $\langle -5, 7 \rangle$?

- $A(-3, 11)$ $B(1, 4)$ $C(-5, 7)$
- $A(3, 11)$ $B(1, 4)$ $C(-5, 7)$
- $A(7, 11)$ $B(1, 4)$ $C(-5, 7)$
- $A(-3, 11)$ $B(11, 4)$ $C(5, 7)$
- None of these

42. The supplement of an angle is five times the measure of the angle. Find the measure of the complement

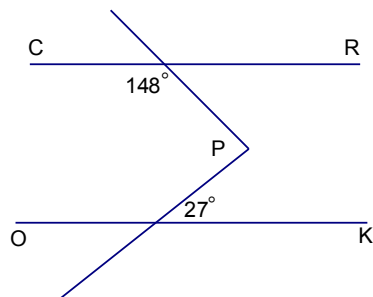
- a. 120
- b. 210
- c. 60
- d. 30
- e. 90

43. Which is the inverse of the statement: If a ray divides an angle into 2 congruent angles then the ray bisects the angle

- a. If a ray bisects an angle then it divides the angle into two congruent angles
- b. If a ray does not bisect an angle then it does not divide the angle into two congruent angles
- c. If a ray does not divide an angle into 2 congruent angles then the ray does not bisect the angle
- d. None of these

44. Given $\overline{CR} \parallel \overline{OK}$
Find P.

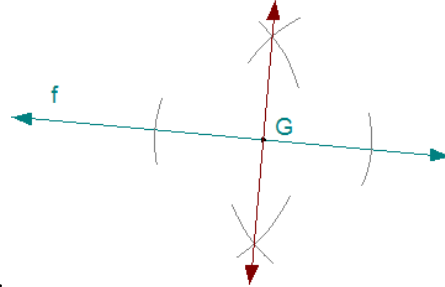
- a) 148°
- b) 27°
- c) 175°
- d) 59°
- e) 90°



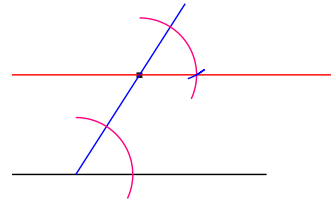
45. Given $\triangle ABC \sim \triangle FED$, $AB = 10$, $FD = 64$, $AC = x$, $BC = 12$, and $ED = 3x$. Find FE .

- a) 16
- b) 40
- c) 48
- d) 52
- e) 56

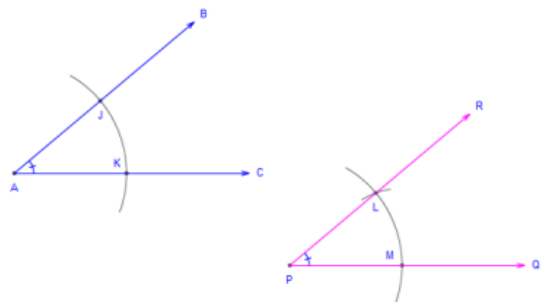
Name the construction:



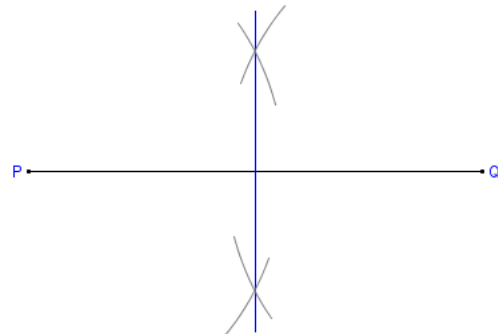
46.



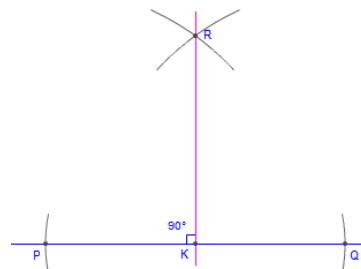
47.



48.



49.



50.