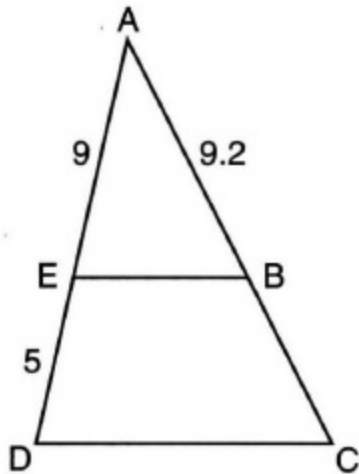
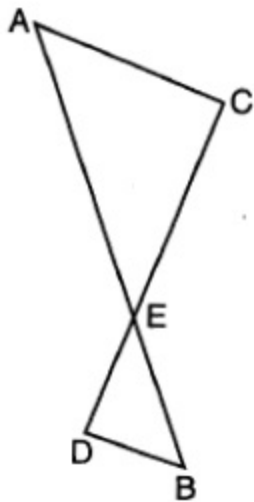


1. In the diagram of $\triangle ADC$ below, $\overline{EB} \parallel \overline{DC}$, $AE = 9$, $ED = 5$, and $AB = 9.2$.



What is the length of \overline{AC} , to the *nearest tenth*?

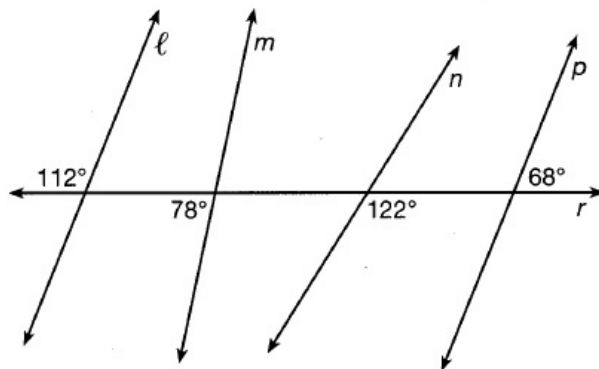
- (1) 5.1 (2) 5.2 (3) 14.3 (4) 14.4
2. As shown in the diagram below, \overline{AB} and \overline{CD} intersect at E , and $\overline{AC} \parallel \overline{BD}$.



Given $\triangle AEC \sim \triangle BED$, which equation is true?

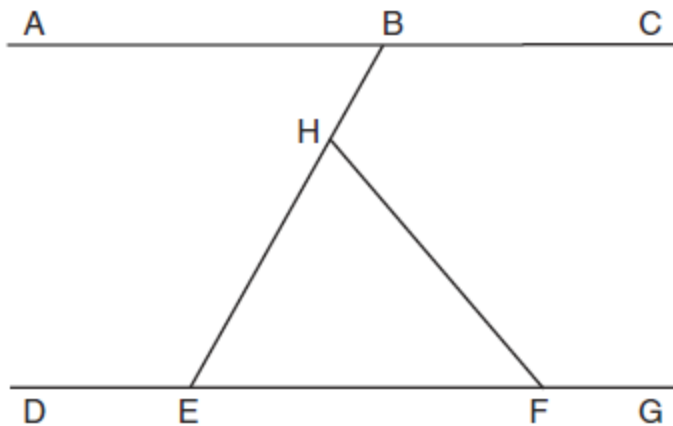
- (1) $\frac{EC}{AE} = \frac{BE}{ED}$ (2) $\frac{CE}{DE} = \frac{EB}{EA}$ (3) $\frac{AE}{BE} = \frac{AC}{BD}$ (4) $\frac{ED}{EC} = \frac{AC}{BD}$
3. When $\triangle ABC$ is dilated by a scale factor of 2, its image is $\triangle A'B'C'$. Which statement is true?
- (1) $\angle A \cong \angle A'$
 (2) $\overline{AC} \cong \overline{A'C'}$
 (3) $2(\text{area of } \triangle ABC) = \text{area of } \triangle A'B'C'$
 (4) $\text{perimeter of } \triangle ABC = \text{perimeter of } \triangle A'B'C'$

4. In the diagram below, lines ℓ , m , n , and p intersect line r .



Which statement is true?

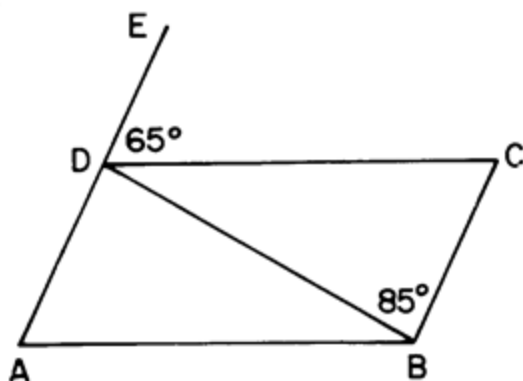
- (1) $\ell \parallel p$ (2) $\ell \parallel n$ (3) $m \parallel p$ (4) $m \parallel n$
5. In the diagram below, $\overline{ABC} \parallel \overline{DEFG}$, Transversal \overline{BHE} and line segment \overline{HF} are drawn.



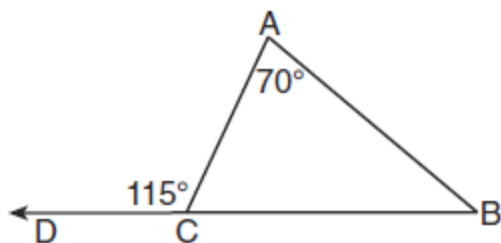
If $m\angle HFG = 130$ and $m\angle EHF = 70$, what is $m\angle ABE$?

- (1) 40 (2) 50 (3) 60 (4) 70

6. In the accompanying diagram of parallelogram $ABCD$, side \overline{AD} is extended through D to E and \overline{DB} is a diagonal. If $m\angle EDC = 65$ and $m\angle CBD = 85$, what is the value of $m\angle CDB$?

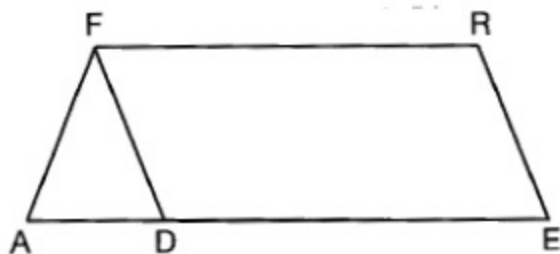


- (1) 20 (2) 30 (3) 40 (4) 45
7. In $\triangle ABC$, $m\angle CAB = 2x$ and $m\angle ACB = x + 30$. If \overline{AB} is extended through point B to point D , $m\angle CBD = 5x - 50$. What is the value of x ?
- (1) 25 (2) 30 (3) 40 (4) 46
8. As shown in the diagram below of $\triangle ABC$, \overline{BC} is extended through D , $m\angle A = 70$, and $m\angle ACD = 115$.



Which statement is true?

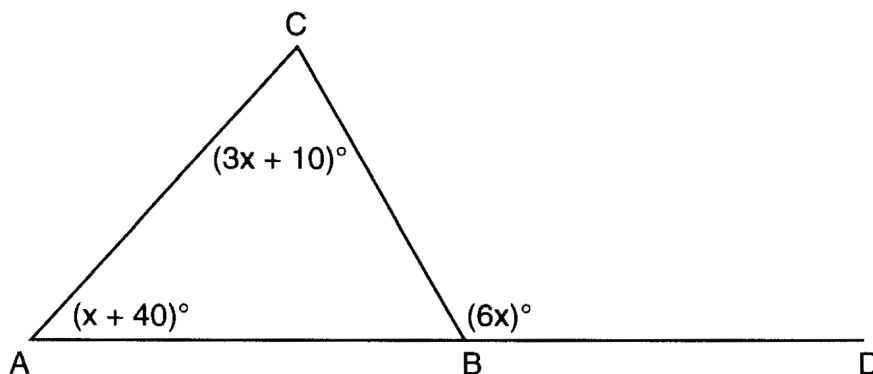
- (1) $AC > AB$ (2) $BC < AC$ (3) $AC < AB$ (4) $AB > BC$
9. In the diagram of parallelogram $FRED$ shown below, \overline{ED} is extended to A , and \overline{AF} is drawn such that $\overline{AF} \cong \overline{DF}$.



If $m\angle R = 124^\circ$, what is $m\angle AFD$?

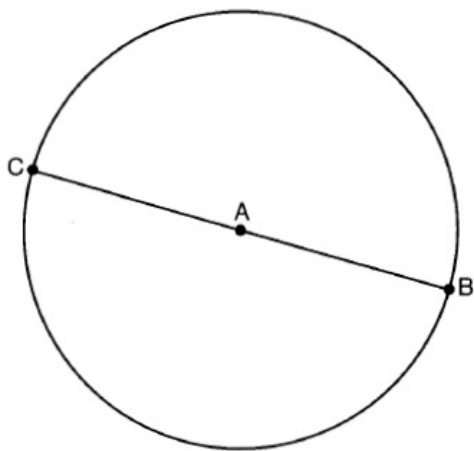
- (1) 124° (2) 68° (3) 56° (4) 112°

10. In the diagram of $\triangle ABC$ below, \overline{AB} is extended to point D .



If $m\angle CAB = x + 40$, $m\angle ACB = 3x + 10$, and $m\angle CBD = 6x$, what is $m\angle CAB$?

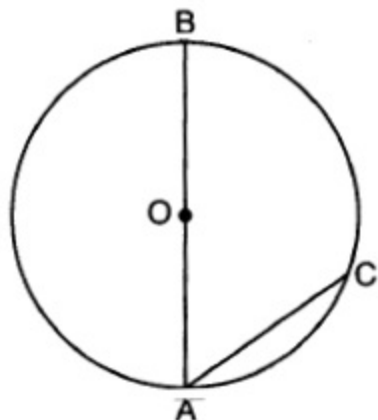
- (1) 53 (2) 25 (3) 13 (4) 65
11. Which transformation would *not* always produce an image that would be congruent to the original figure?
- (1) reflection (2) dilation (3) rotation (4) translation
12. If the perimeter of a square is 8, which is the length of a diagonal?
- (1) $2\sqrt{2}$ (2) 4 (3) $8\sqrt{2}$ (4) $2\sqrt{3}$
13. An equilateral triangle has sides of length 20. To the *nearest tenth*, what is the height of the equilateral triangle?
- (1) 23.1 (2) 17.3 (3) 10.0 (4) 11.5
14. In the diagram below, \overline{BC} is the diameter of circle A .



Point D , which is unique from points B and C , is plotted on circle A . Which statement must always be true?

- (1) $\triangle BAD$ and $\triangle CBD$ are similar triangles.
- (2) $\triangle BCD$ is an isosceles triangle.
- (3) $\triangle BCD$ is a right triangle.
- (4) $\triangle BAD$ and $\triangle CAD$ are congruent triangles.

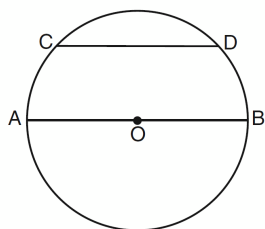
15. As shown in the diagram below, \overline{AB} is a diameter of circle O , and chord \overline{AC} is drawn.



If $m\angle BAC = 70$, then $m\widehat{AC}$ is

- (1) 140 (2) 40 (3) 110 (4) 70

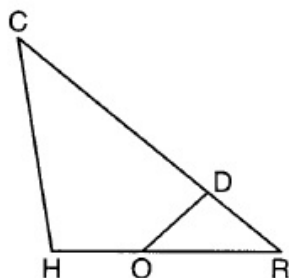
16. In the diagram below of circle O , diameter \overline{AB} is parallel to chord \overline{CD} .



If $m\widehat{CD} = 70$, what is $m\widehat{AC}$?

- (1) 55 (2) 35 (3) 110 (4) 70

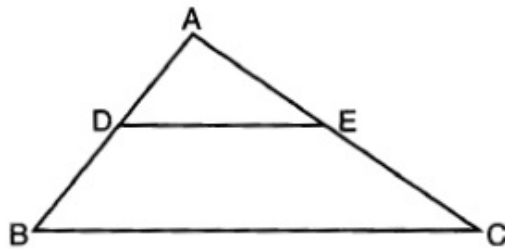
17. In triangle CHR , O is on \overline{HR} , and D is on \overline{CR} so that $\angle H \cong \angle RDO$.



If $RD = 4$, $RO = 6$, and $OH = 4$, what is the length of \overline{CD} ?

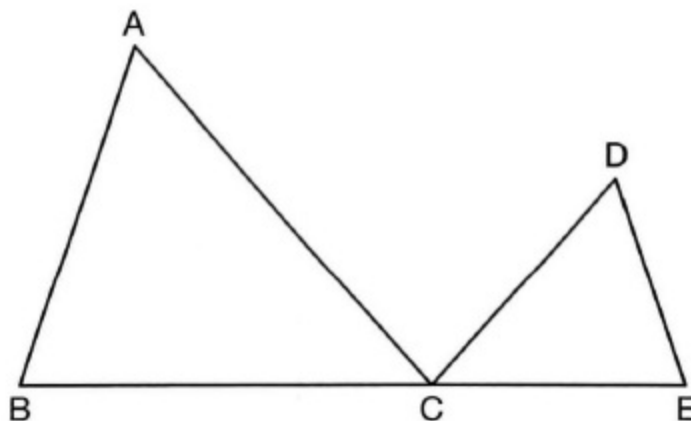
- (1) 15 (2) $2\frac{2}{3}$ (3) 11 (4) $6\frac{2}{3}$

18. In the diagram below, $\triangle ABC \sim \triangle ADE$



Which measurements are justified by this similarity?

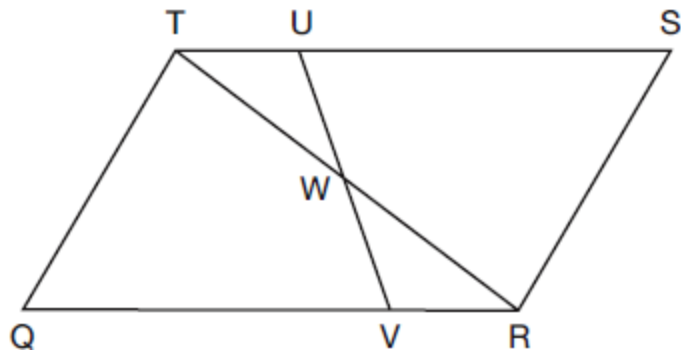
- (1) $AD = 3$, $AB = 9$, $AE = 5$, and $AC = 10$
 - (2) $AD = 5$, $AB = 8$, $AE = 7$, and $AC = 10$
 - (3) $AD = 2$, $AB = 6$, $AE = 5$, and $AC = 15$
 - (4) $AD = 3$, $AB = 6$, $AE = 4$, and $AC = 12$
19. In the diagram below, $\triangle ABC \sim \triangle DEC$.



If $AC = 12$, $DC = 7$, $DE = 5$, and the perimeter of $\triangle ABC$ is 30, what is the perimeter of $\triangle DEC$?

- (1) 12.5 (2) 14.0 (3) 14.8 (4) 17.5
20. If $\triangle ABC$ is dilated by a scale factor of 3, which statement is true of the image $\triangle A'B'C'$?
- (1) $3A'B' = AB$
 - (2) $B'C' = 3BC$
 - (3) $3(m\angle C') = m\angle C$
 - (4) $m\angle A' = 3(m\angle A)$

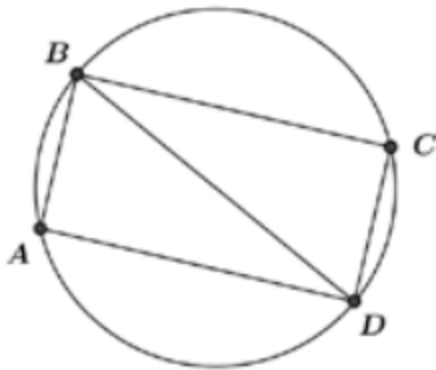
21. In parallelogram $QRST$ shown below, diagonal \overline{TR} is drawn, U and V are points on \overline{TS} and \overline{QR} , respectively, and \overline{UV} intersects \overline{TR} at W .



If $m\angle S = 60^\circ$, $m\angle SRT = 83^\circ$, and $m\angle TWU = 35^\circ$, what is $m\angle WVQ$?

- (1) 37° (2) 60° (3) 72° (4) 83°

22. Rectangle $ABCD$ is inscribed in a circle, and it is cut in half, forming triangles ABD and BCD .

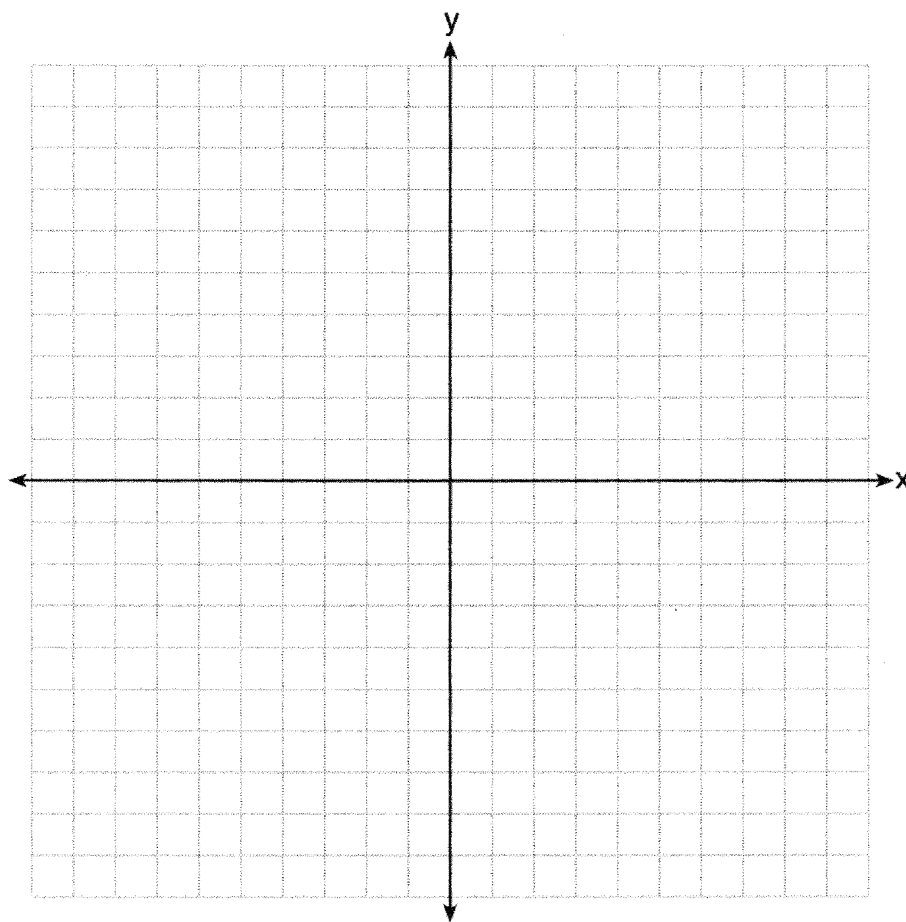


Triangle BCD is reflected across diagonal BD to form rectangle $BCDE$ (not shown). If one of the acute angles formed by the diagonal in the original rectangle was 30° , what are the measurements of the angles in rectangle $BCDE$?

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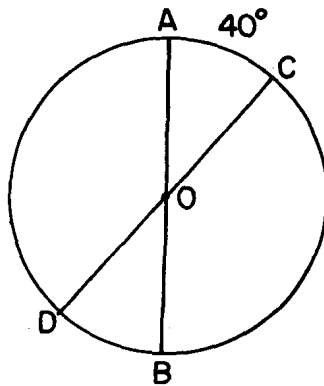
Spring Break Review

23. The coordinates of the vertices of parallelogram $SWAN$ are $S(2,-2)$, $W(-2,-4)$, $A(-4,6)$, and $N(0,8)$. State and label the coordinates of parallelogram $S''W''A''N''$, the image of $SWAN$ after the transformation $T_{4,-2} \circ D_{\frac{1}{2}}$. [The use of the set of axes below is optional.]

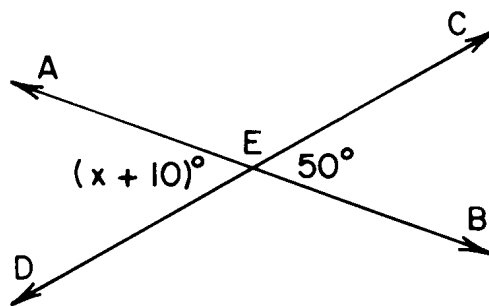


24. In right triangle ABC , \overline{AB} is the hypotenuse. If $AC = 5$ and $BC = 12$, express $\frac{\sin B}{\tan B}$ as a fraction in lowest terms.
25. Find the value of R that will make the equation $\sin 73^\circ = \cos R$ true when $0^\circ < R < 90^\circ$. Explain your answer.

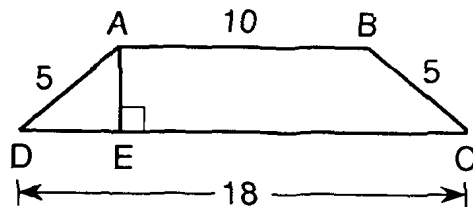
26. In the accompanying diagram of circle O , diameters AB and CD intersect at O . If the measure of arc AC is 40° , find the number of degrees in the measure of angle COB .



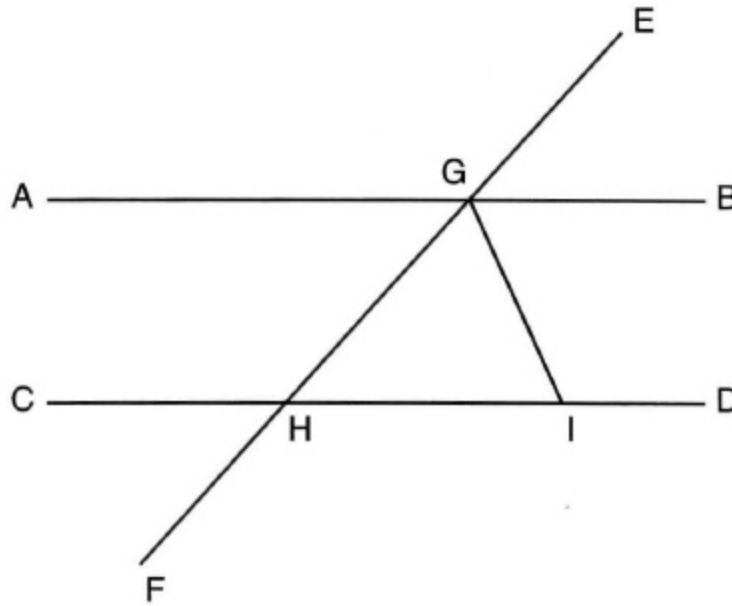
27. In the accompanying diagram, lines \overleftrightarrow{AB} and \overleftrightarrow{CD} intersect at point E . If $m\angle AED = (x + 10)$ and $m\angle CEB = 50$, find x .



28. In the accompanying diagram, $ABCD$ is an isosceles trapezoid, $AD = BC = 5$, $AB = 10$, and $DC = 18$. Find the length of altitude \overline{AE} .



29. In the diagram below, \overline{EF} intersects \overline{AB} and \overline{CD} at G and H , respectively, and \overline{GI} is drawn such that $\overline{GH} \cong \overline{IH}$.



If $m\angle EGB = 50^\circ$ and $m\angle DIG = 115^\circ$, explain why $\overline{AB} \parallel \overline{CD}$.

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