

FINAL EXAM

I. Fill in the blank with the best answer. (3 points each)

1. _____ The trigonometric function defined as “the adjacent side over the hypotenuse.”
2. _____ An angle with a measure greater than 90° but less than 180° .
3. _____ A piece of the circumference of a circle.
4. _____ Any two angles whose measures add to 90° .
5. _____ An infinite number of connected lines lying in the same flat surface; it has length and width; two dimensional.
6. _____ A four-sided polygon with two parallel sides and two sides that are not parallel.
7. _____ A rectangular solid with all edges having the same length.
8. _____ Two or more points in the same line.
9. _____ Having the same size and shape.
10. _____ Distance around any two-dimensional geometric shape.

II. Given the drawing at right, answer the following questions. (3 points each)

1. What kind of quadrilateral is quadrilateral ABDE?

2. What angle(s) correspond(s) to $\angle 10$? (give all answers)

3. $m\angle 6 = \underline{\hspace{1cm}}^\circ$

4. $m\angle 5 = \underline{\hspace{1cm}}^\circ$

5. Given that segment DC is 8 inches, find the lengths of the other two sides of triangle BCD.

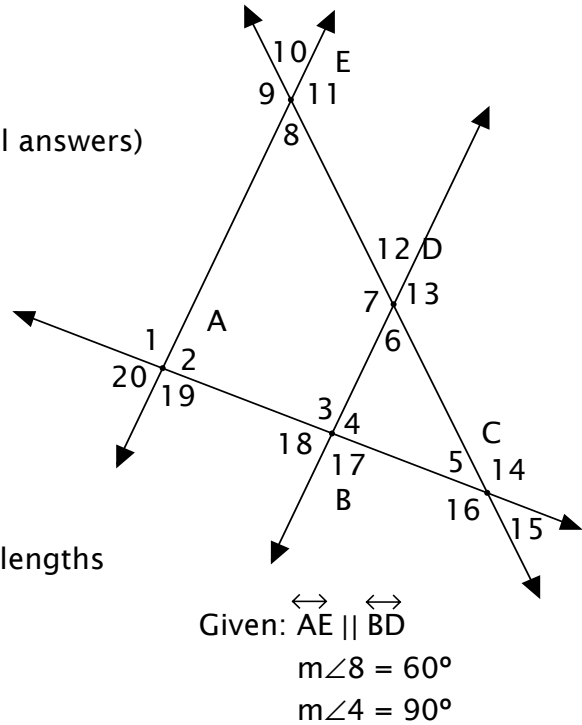
6. $m\angle 14 = \underline{\hspace{1cm}}^\circ$

7. Is $m\angle 2 = m\angle 11$? Why or why not?

8. Name all the labeled points that are not collinear with point B in the drawing.

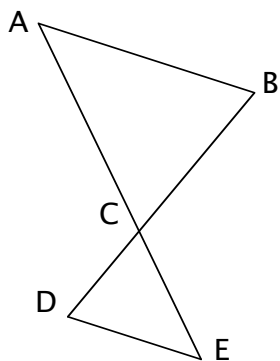
9. For $\triangle BCD \sim \triangle ACE$, use your answers from #5 above and find the length of the segment AE if $CE = 20$.

10. Using your answers from #5 and #9, what is the length of segment AB?



III. Write a proof for each of the following. (12 points each)

1.

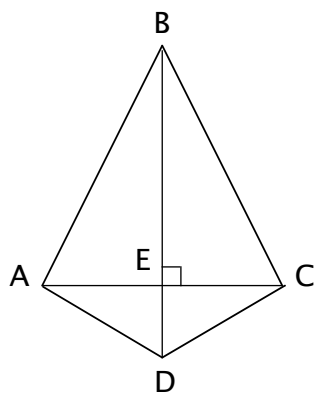


Given: $\overline{CE} \cong \overline{CA}$
 $\angle ABC \cong \angle EDC$
 Prove: $\triangle ABC \cong \triangle CDE$

The drawing is a sketch and is not to scale.

Statements	Reasons

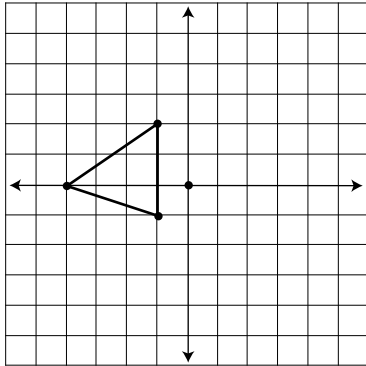
2.



Given: $\overline{AB} \cong \overline{BC}$
 Prove: $\overline{AE} \cong \overline{EC}$

Statements	Reasons

IV. Graph the reflection of the triangle about the Y-axis. (5 points)



V. Find the volume of a sphere if the radius is given as 3 cm. (5 points)

VI. Find the surface area of a rectangular solid with edges of lengths 2 cm, 5 cm, and 7 cm. (5 points)

VII. The measure of an exterior angle of a regular polygon is 45° . Name the shape of the polygon. (5 points)

VIII. Simplify the following radical expressions, if possible. Reduce to the simplest terms.
(4 points each)

1. $(3\sqrt{2})(4\sqrt{22}) =$

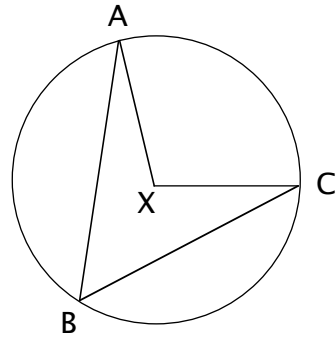
2. $\frac{4}{\sqrt{3}} - \frac{2\sqrt{6}}{\sqrt{2}} =$

3. $-3\sqrt{5} + \sqrt{5} =$

4. $\sqrt{2} + \sqrt{3} + \sqrt{4} + \sqrt{1} =$

- IX. Given that the circumference of a circle is 8π , find the radius. (5 points)
- X. Draw a segment four inches long. Now construct the perpendicular bisector to that segment. Measure your results to check. (5 points)

- XI. If the length of the minor arc AC in the diagram below is 98° , give the measures of the central angle and the inscribed angle shown. (5 points)



Given: X is the center of the circle.

- XII. If the hypotenuse of a right triangle is 5 cm and one leg is 2 cm, what is the measurement of the other leg? (5 points)
- XIII. Given that $\sin \theta = \frac{3}{5}$, find the values of the other 5 trigonometry functions. (10 points)