



Print Full Name: _____

Proctor Signature: _____

GEOMETRY EXAM – CHAPTERS 11&12

DIRECTIONS: You may use a calculator, compass, straight edge, protractor, and pencil only. No book or notes allowed. Where work should be shown you will receive no credit without sufficient work to justify your answer. (When in doubt show organized work!) Where units are required points will be deducted for failure to include them or for using incorrect units. For multiple choice questions please state the capital letter(s) corresponding to your choice(s).

Please write legibly and ensure your upload is dark enough to be read when graded. Please upload as a .pdf and ensure all pages are upright and included in a single document. You may use other paper for your own scratch work. However, only the work shown on this document will be graded. Time limit is 3 hours.

Read the following statements carefully and mark them T or F.

- 1a. The altitude to the hypotenuse of a right triangle forms two triangles that are similar to each other and to the original triangle.
- 1b. The set "11-21-31" is a Pythagorean triple.
- 1c. The diagonal of a square is 2 times the length of one side.
- 1d. The sine of an angle is equal to the cosine of its complement.

2. In an isosceles right triangle, the ratio of the length of the hypotenuse to the length of a leg is:

A. $\sqrt{3}:1$ B. $\sqrt{2}:1$

C. 1:1

D. 2:1

3. Two legs of a right triangle have lengths 12 and 9. What is the measure of the acute angle? Round to the nearest degree: (HINT: Draw a good picture)

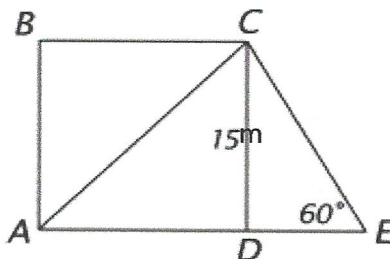
ABCD is a square, A-D-E and CD=15m.

State the exact value of:

4a. AC

4b. DE

4c. EC



1a. _____

1b. _____

1c. _____

1d. _____

2. _____

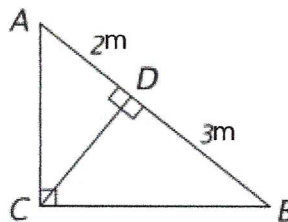
3. _____

4a. _____

4b. _____

4c. _____

CD is the altitude to the hypotenuse of right $\triangle ABC$.
 $AD = 2\text{m}$ and $DB = 3\text{m}$. State the *exact* value of:

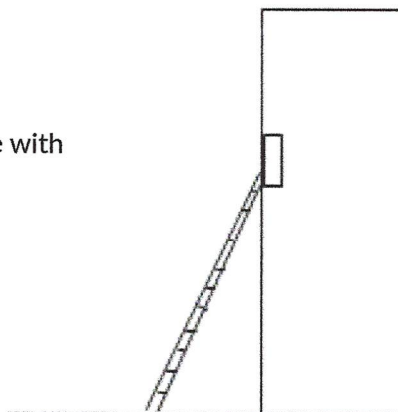


- 5a. CD
 5b. AC
 5c. CB

6a. What is the *formula* for the slope of a line?

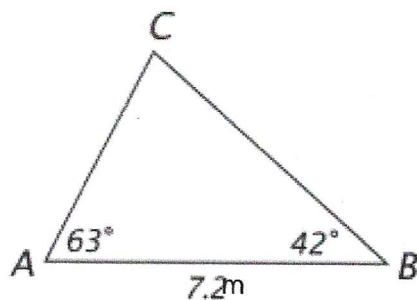
6b. State the slope of a line containing the points $(3, 4)$ and $(-2, 14)$.

A 32-foot ladder leans against a building on level ground. It just reaches a window 25 feet above the ground.



7. To the *nearest degree*, what angle does the ladder make with the ground.

8. Given $\triangle ABC$ with $AB = 7.2\text{m}$, state the measure of AC to the *nearest tenth*.



5a. _____

5b. _____

5c. _____

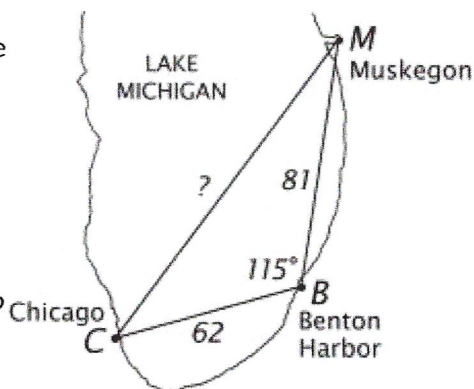
6a. _____
 m = _____

6b. _____

7. _____

8. _____

A boat travels from Chicago (C) to Muskegon (M). Benton Harbor (B) is a 3rd port on the eastern side of the lake.



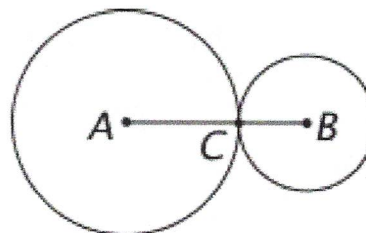
9. If $CB=62$ mi, $BM=81$ mi, and $\angle B=115^\circ$,

how far is it from Chicago to Muskegon? Round to the nearest mile.

9. _____

Circles A and B intersect at point C so that A-C-B.

The radius of circle A is 5m and the radius of circle B is 3m.

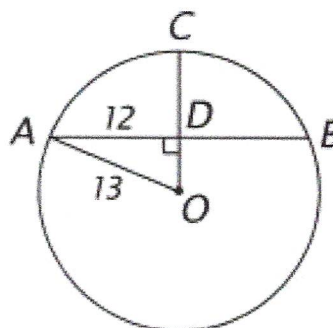


10. What is the *diameter* of a circle centered at A which contains point B?

10. _____

In circle O, $OC \perp AB$, $AD=12$, and $AO=13$.

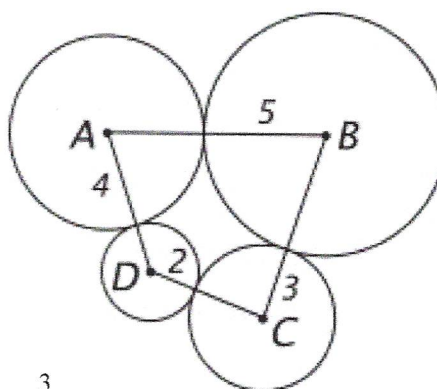
11. State the length of CD.



11. _____

The radii of circles A, B, C, and D are 4, 5, 3, and 2 respectively.

12. What is the perimeter of quadrilateral ABCD?



12. _____

PA is tangent to circle O at A and PB is tangent to circle O at B.

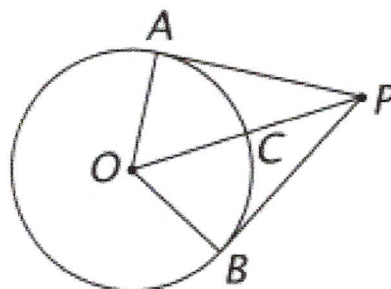
Mark each of the following statements as T or F.

13a. $AP = BP$

13b. $\angle AOP = \angle BOP$.

13c. $m\widehat{AC} = m\widehat{CB}$.

13d. $\angle OAP$ is obtuse.



13a. _____

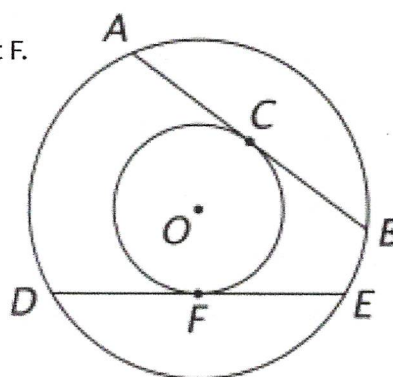
13b. _____

13c. _____

13d. _____

Point O is the center of both circles. AB is tangent to the smaller circle at C and DE is tangent to the smaller circle at F.

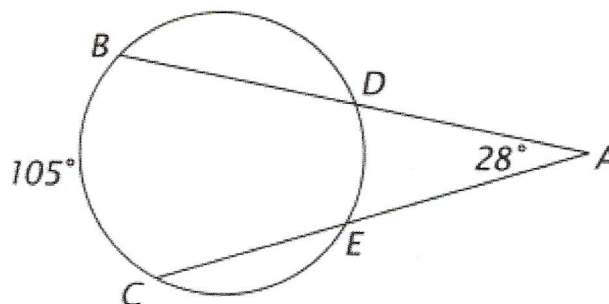
14. If $DE = 11m$, then what is the measure of AC?



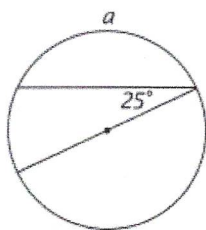
14. _____

In this figure the measure of arc BC is 105° and $\angle BAC = 28^\circ$.

15. State the measure of arc DE.

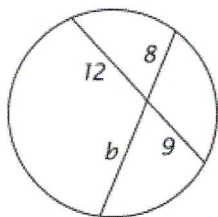


15. _____



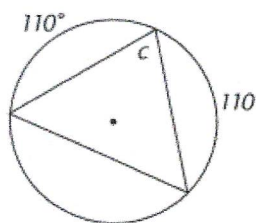
16a. What type of angle is represented in this figure?

16b. What is the measure of the arc intercepted by the 25° angle?



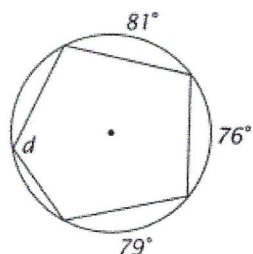
16c. What type of angle is represented in this figure?

16d. State the measure of "b." No units required.



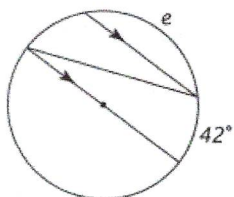
16e. What type of angle is represented by "c" in this figure?

16f. What is the measure of $\angle c$?



16g. What shape is inscribed in this circle?

16h. What is the measure of $\angle d$?



16i. What is the measure of arc e?

16a. _____

16b. _____

16c. _____

16d. _____

16e. _____

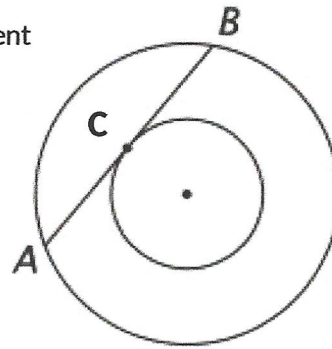
16f. _____

16g. _____

16h. _____

16i. _____

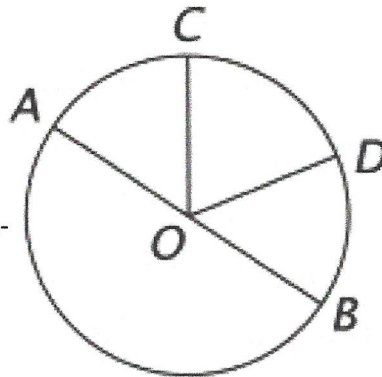
Two concentric circles have radii of 5m and 10m. AB is tangent to the smaller circle at C.



17. To the nearest tenth, find the length of chord AB. (HINT: You would do well to note the radii in the picture, relating them to A, B, and C.)

17. _____

AB is a diameter of circle O and $m\widehat{AC} = m\widehat{DB}$.



18. If $\angle AOC = (2x + 8)^\circ$ and $\angle BOD = (3x - 16)^\circ$, find the measure of arc CD.

18. _____