

Geo CP midterm study guide –
answer key

1) What is a ratio, and how do you represent one?

- A statement of how two numbers compare.
- a/b ; $a:b$; a to b

2) In a rectangle, the ratio of the base to the height is 3:7. If the height of the triangle is 30 inches long, what is the base of the rectangle?

12.9

3) Of the 375 people who attended the drama department's show last night, 250 were teenagers, and the rest were adults. What is the ratio of teenagers to adults who attended the show?

2:1

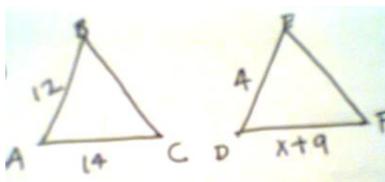
4) Which conditions have to be met in order for two polygons to be similar?

1. All corresponding angles are congruent
2. All corresponding sides are proportional

5) If you have two triangles that are similar, and you are given the measures of two pairs of corresponding sides where one of the sides is unknown, what do you have to do to find the length of the missing side?

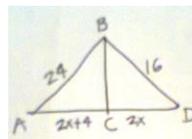
- Set up a proportion

6) If triangle ABC is similar to triangle DEF, and $AB=12$, $DE=4$, $AC=14$, and $DF=x+9$, what is the value of x ? What is the scale factor between the sides?



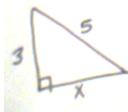
- $x = -4.3$
- $Sf = 3$

7) $\triangle ABC$ and $\triangle CBD$ form $\triangle ABD$. $AB=24$, $BD=16$, $AC=2x+4$, $CD=2x$. Find the value of x .



4

8) In a right triangle, the measures of the legs are 3, x and 5, where 5 is across from the right angle. What is x ?

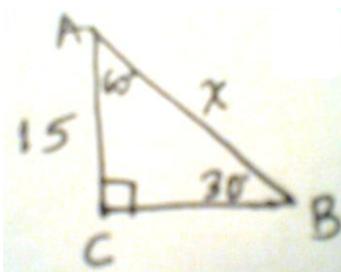


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9) How do you know whether a set of measures could represent the sides of a triangle? Give an example of a set of numbers that would form a triangle, and another set of numbers that would not form a triangle.

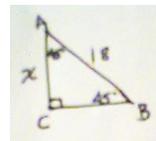
- You add the two smallest sides together; if the sum is greater than the third side, then it is a triangle.
- Example: 4, 3, 6
- Counterexample: 4, 5, 10

10) In $\triangle ABC$, $m\angle A=60$, $m\angle B=30$, $AC=15$, and $AB=x$. What is the value of x ?

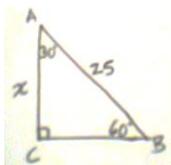


30

11) In $\triangle ABC$, $m\angle A=45$, $m\angle B=45$, $AB=18$, $AC=x$. What is the value of x ?

 $9\sqrt{2}$

12) In $\triangle ABC$, $m\angle A=30$, $m\angle B=60$, $AB=25$, $AC=x$.
What is the value of x ?



$12.5\sqrt{3}$

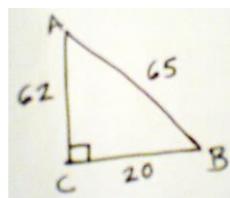
13) What is the acronym to remember the trigonometric ratios? How do you decide which ratio to use?

- SOH CAH TOA
- Start at the angle given, label the sides given in relationship to the angle (opposite, adjacent, hypotenuse), and then decide which ratio to use based on the angle and the two sides given.

14) How do you find the measure of a missing angle in a right triangle, if you are given the measure of two of the sides?

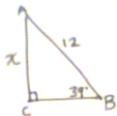
- Use the inverse of the trigonometric ratio you would use (inverse sine, inverse cosine, or inverse tangent)

15) $\triangle ABC$ is a right triangle, with angle C being the right angle. $BA=65$, $AC=62$, $BC=20$. What is the $\cos A$?



$62/65$

16) $\triangle ABC$ is a right triangle, with angle C being the right angle. $m\angle B=39$, $AC=x$, $AB=12$. What is x ?



7.6

17) $\triangle ABC$ is a right triangle, with angle C being the right angle. $m\angle A=x$, $AB=14$, $AC=8$. What is x ?



55.2

18) What is an angle of elevation? How do you find an angle of elevation?

- The angle formed when looking up
- Use the inverse of the trigonometric ratio that applies

19) If the sun casts a shadow 38 feet long from a tree that is 21 feet tall, what is the angle of elevation?

28.9 degrees

20) What is a diameter?

- A chord that goes through the center of a circle

21) How do you find the circumference?

- With either $C=2\pi r$ or $C=\pi d$

22) The diameter of a circular pond is 27 feet.
What is the circumference of the pond rounded
to the nearest hundredth?

84.78 ft

23) What is a central angle?

- An angle in a circle with a vertex on the center

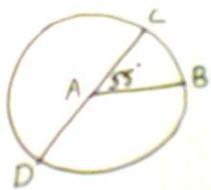
24) What is the relationship between the measure of the central angle and the arc that it intersects in a circle?

- They are congruent.

25) What is a semicircle (include its measure)?

- An arc that measures 180 degrees.

26) In circle A, $\angle CAB$ is a central angle that intersects arc CB, and arc CB forms a semicircle with arc BD. If $m\angle CAB=55$, what is the measure of arc BD?



125 degrees

27) What is the difference between the measure and the length of an arc?

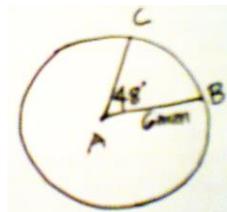
- The measure is in degrees, and the length is in units (e.g., cm, inches, etc.)

28) How do you find the length of an arc?

- Use the proportion:

$$\frac{l}{C} = \frac{o}{360}$$

29) In circle A, $\angle CAB$ is a central angle that intersects arc CB, and $m\angle CAB=48$. What is the length of arc CB rounded to the nearest hundredth if the radius is 6mm?



5.02 mm

30) What is a chord in a circle?

- A segment with both endpoints on the circle

31) What is the relationship between chords that are equidistant to the center of the circle?

- They are congruent.

32) If a radius, diameter (or part of a radius or diameter) is perpendicular to a chord, what does the radius or diameter do to the chord and the arc intersected by that arc?

- It bisects both the chord and the arc intersected by that arc.

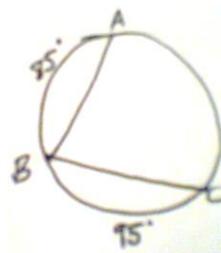
33) What is an inscribed angle?

- An angle with the three vertices on the circle

34) What is the relationship between an inscribed angle and the arc that it intersects?

- The inscribed angle is half the arc

35) $\angle ABC$ is an inscribed angle that intersects arc AC. If the measure of arc AB is 85, and the measure of arc BC is 95, what is the $m\angle ABC$?



90 degrees

36) If a quadrilateral is inscribed in a circle, what is the relationship between the angles that are opposite of each other?

- Opposite angles are supplementary.

37) What is a tangent in a circle?

- A segment, ray or line that crosses a circle in exactly one point called the point of tangency

38) What is the relationship between two tangents that originate from the same exterior point?

- They are congruent.

39) What is the equation of a circle?

- $(x - h)^2 + (y - k)^2 = r^2$

40) What is the equation of a circle that has a center at (3, -5) and radius of 8?

- $(x - 3)^2 + (y + 5)^2 = 64$

41) If you are given a circle drawn in a coordinate plane, how would you find the equation of the circle?

- Find the coordinates of the center, and the length of the radius, and then enter those values into the equation of the circle