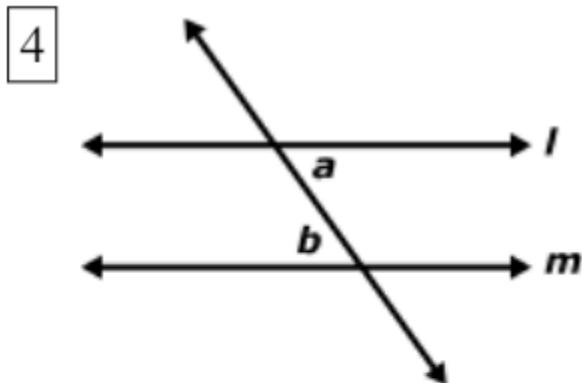


Geometry Final Exam Spring 2024 Study Guide

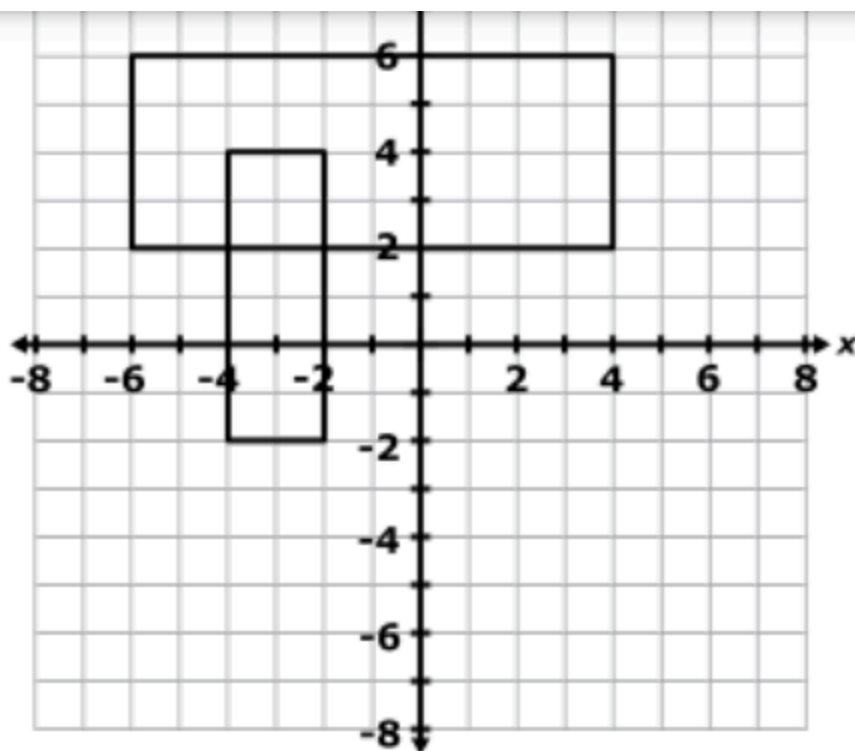
- 1 Which of the following expressions represents the multiplied version of the expression below?

$$(8x^3 + 3)(8x^3 - 3)$$



Which of the following conditions will guarantee that line l is parallel to line m in the diagram?

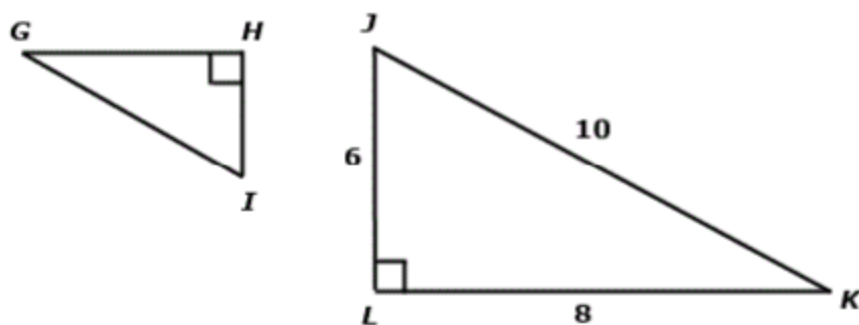
- A. $\angle a$ and $\angle b$ are complementary
- B. $\angle a$ and $\angle b$ are congruent
- C. $\angle a$ and $\angle b$ are supplementary
- D. $\angle b$ is twice the value of $\angle a$



Whose claim is correct and why?

- A. Miguel is correct because the two rectangles are not oriented in the same direction.
 - B. Arianna is correct because the four angles of the smaller rectangle are the same as the four angles of the larger rectangle.
 - C. Arianna is correct because the smaller rectangle has side lengths that are half the size of the side lengths of the larger rectangle.
 - D. Miguel is correct because the measures of the sides of the smaller rectangle are not proportional to the measures of the sides of the larger rectangle.
-

- 6 Triangle GIH is similar to triangle KJL .



Select ALL angles whose tangent equals $\frac{6}{8}$.

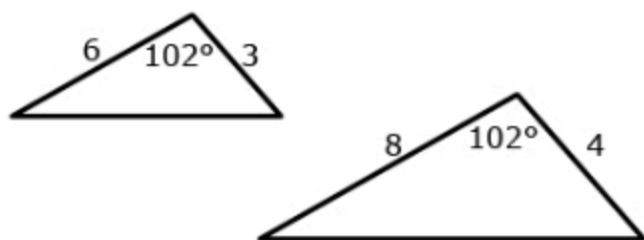
- 8 Kyle draws one card from a standard deck of 52 cards. What is the probability that he draws an 8 or a diamond?
- A. $\frac{1}{4}$
- B. $\frac{1}{13}$
- C. $\frac{4}{13}$
- D. $\frac{17}{52}$

- 11 $\triangle A'B'C'$ is the image of $\triangle ABC$ under a dilation with a scale factor of 4, centered at the origin. If $AB = 8$ units, what is the unit length of $\overline{A'B'}$?

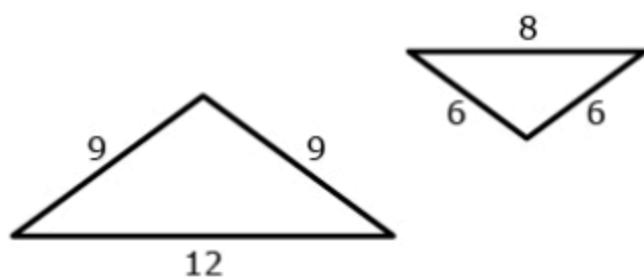
- A. 32
- B. 12
- C. 4
- D. 2

- 12 Identify the triangles below that are similar by SAS similarity.

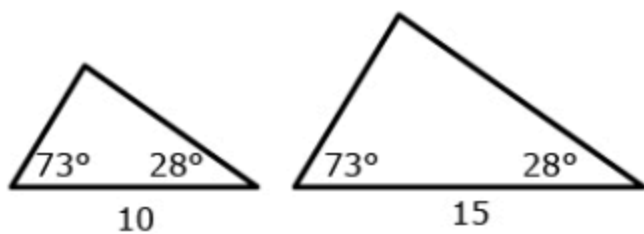
A.



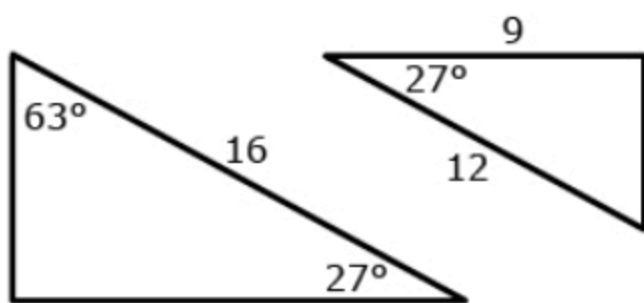
B.



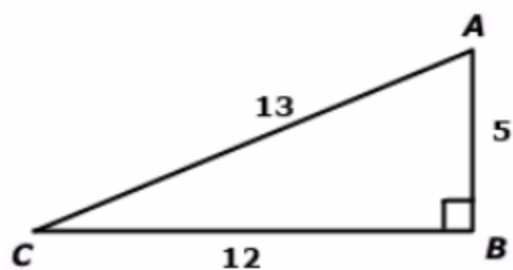
C.



D.

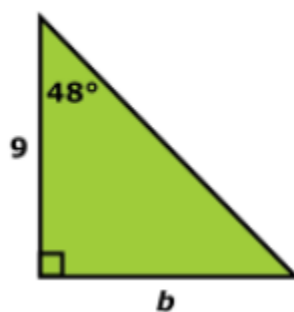


- 13 Consider this right triangle.

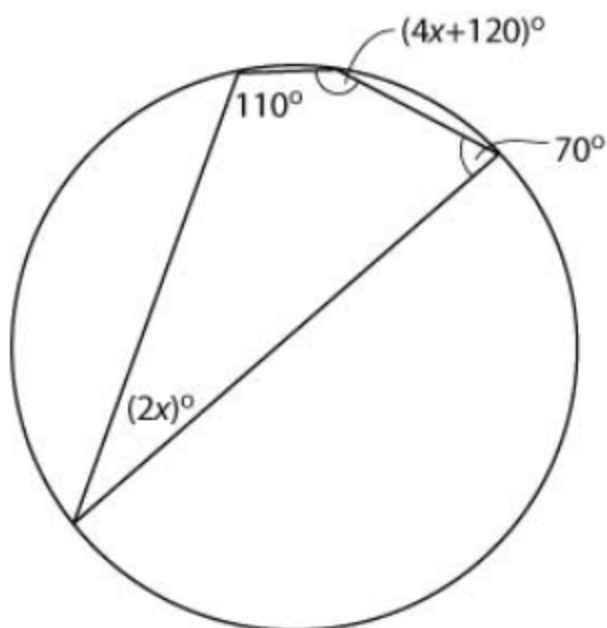


Select the ratio equivalent to $\tan(A)$.

-
- 15 Choose the equation that could be used to determine b .

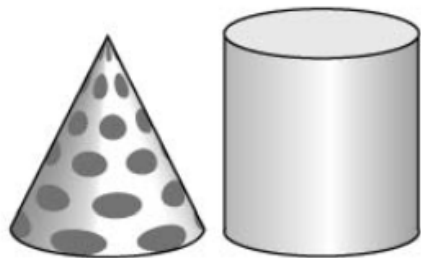


- 16 The figure shows an irregular quadrilateral inscribed in a circle.



Which value of x is correct?

- 18 The conical party hat and cylindrical storage container below each have equal radii and heights.



Which statement is true?

- A. The volume of the party hat is one-third the volume of the storage container.
- B. The volume of the storage container is one-third the volume of the party hat.
- C. The volume of the party hat is one-half the volume of the storage container.
- D. The volumes of the party hat and storage container are equal.

- 20 There are 12 red and 14 blue candies in a jar. If two candies are taken from the jar one at a time without replacement, which of these represents the probability that both of the candies are red?

A. $\left(\frac{12}{26}\right)\left(\frac{11}{25}\right)$
B. $\left(\frac{12}{26}\right)\left(\frac{12}{26}\right)$
C. $\frac{12}{26} + \frac{11}{25}$
D. $\frac{2}{12}$

- 21 If Jacob owns 12 books, how many different ways can he arrange 3 of these books on a single bookshelf?

A. 4
B. 36
C. 220
D. 1,320

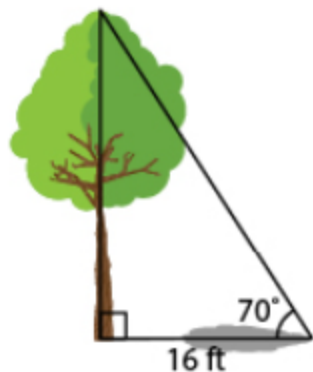
- 22 Which of the following best completes this definition?

Two lines are parallel if and only if

_____.

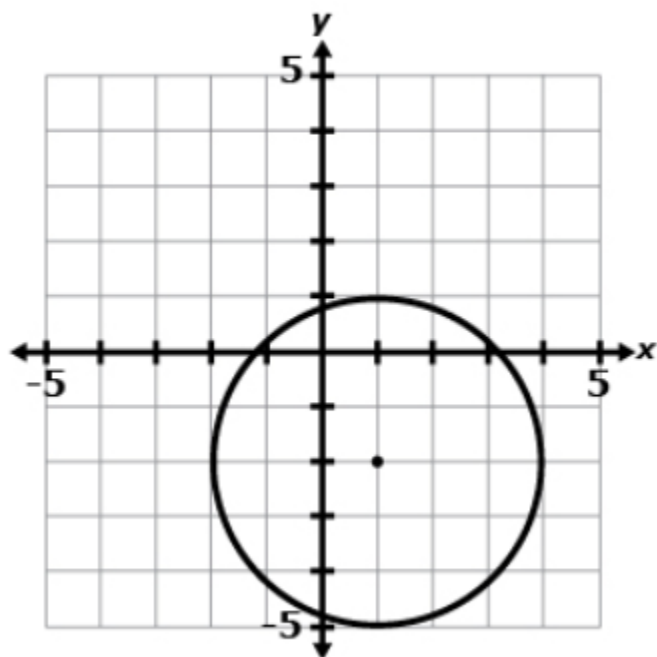
A. they lie in the same plane and do not intersect
B. they do not lie in the same plane and do not intersect
C. they intersect and form right angles
D. they intersect and form acute angles

- 23 A tree casts a 16-foot-long shadow on level ground. A forestry student uses a clinometer to determine that the sun is at a 70° angle of elevation.



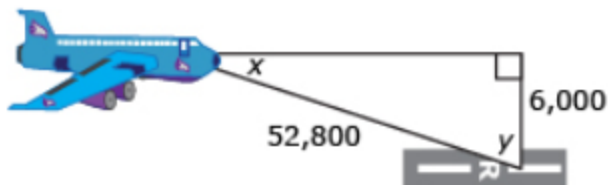
What is the height of the tree to the nearest whole foot?

- 17 A circle is drawn on the coordinate plane below.



Write the equation of this circle.

- 14 While flying a plane, a pilot spots a runway ahead. The pilot knows that she is exactly 10 miles or 52,800 feet away from the runway. She also knows that her altitude is 6,000 feet.



Part A:

What is the approximate angle of depression (x) shown in the diagram above?

Part B:

Which trigonometric ratio could determine the value of angle y using the sides 6,000 and 52,800? Find the value of angle y by using the appropriate trigonometric ratio.